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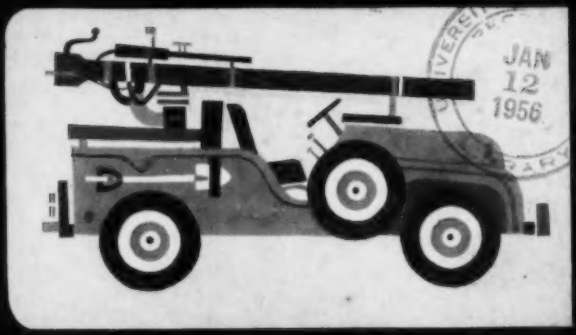

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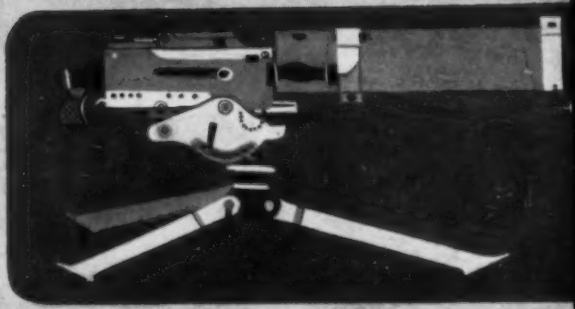

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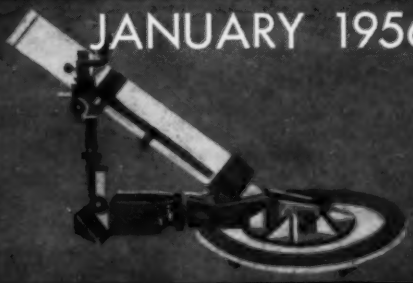

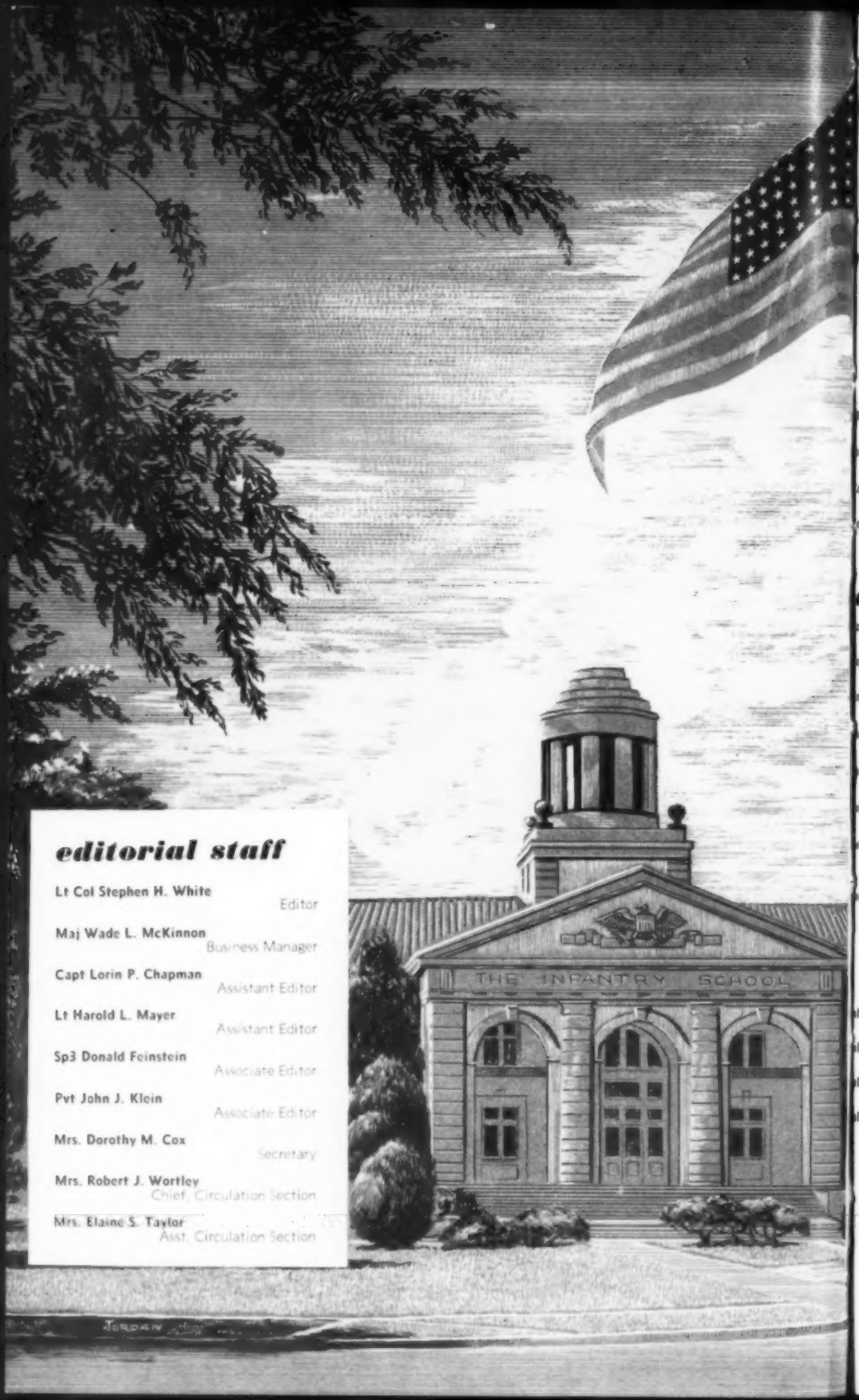

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THE

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SCHOOL QUARTERLY

olume 46 number 1 january 1956

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Published quarterly by The Infantry School, Fort Benning, Ga. Entered as second-class matter June 11, 1948, at the Post Office, Columbus, Ga., under the Act of March 3, 1879. Subscription rates: 1 year, $2.50; 2 years, $4.75; 3 years, $7.00. Four copies a year. Foreign subscribers add $.25 yearly for postage. Address subscription applications to THE BOOK DEPARTMENT, THE INFANTRY SCHOOL, FORT BENNING, GA.

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letters

Soviet Tactics

Fort Benning, Ga.

Sir:

Many thanks for the splendid and thorough article on "Soviet Tactics" in the October 1955 issue. Major Jackson has given us a much-needed look at Soviet methods of waging war. His absorbing treatment of the topic has sparked a good deal of coffee-break conversation.

Donald C. Immel
Capt, Inf

The idea for the story came from our readers. Their answers to our questionnaires included many requests for information about the Soviet Army. The more suggestions we get the more articles of universal interest we can publish.

—Editor

Errare Humanum Est

3d 105mm How Btry
Fort Worth, Texas

Sir:

Pardon my picayunish attitude but in your message to the reader titled "Hannibal Had an Idea" on page 112 of the October issue you stated that Hannibal was the first to introduce the elephant into combat. Tsk! Tsk! Not so!

The elephant was first employed in combat by Pyrrhus, king of Epirus, in 282 B.C.

Pyrrhus used the elephant in an attempt to crush the Roman legions in the Battle of Heraclea. The degree of his success continues to be argued by historians but he did rout the Romans. Later, however, in the Battle of Beneventum, the Romans, who had since learned how to deal with the descendent of the mastodon, managed to turn and stampede the lumbering beasts back towards the onrushing army of Epirus. As may be surmised, the outcome of the encounter resulted in a victory for Rome.

Moral: Don't put all your eggs in one weapon, be it pachydermic or atomic. . . . Amen.

Robert H. MacDougall, Jr
1st Lt, USMC

Foiled again! Our cotton-pickin' research is still red-faced from his faux pas in the July issue. Nevertheless, we'd like to invite other erudite readers to trace this back further. Who knows, perhaps Cro-Magnon man tossed rocks from atop mastodons back in paleolithic times.

—Editor

More on Atomic Survival

Fort Benning, Ga.

Sir:

I was particularly impressed by two points made by Lt Col Robert F. Bell in "How to Survive an Atomic Blast" (October 1955).

His warning about the possible casualties from panic and his factual debunking of the radiation scare should be key points in any unit's training.

Can you tell me what publications are available at company level about surviving under atomic warfare conditions?

Florian C. Pasch
SFC, Inf

We know of two excellent pamphlets

... to the editor

on this subject. DA Pamphlet No. 20-111 is available from the Superintendent of Documents, Washington 25, D. C., for 10 cents. The Staff Department, TIS, has published a 26-page advance sheet on "Characteristics and Effects of Atomic Explosions." This can be obtained from the Book Department, TIS, for 25 cents.—Editor

Keep a File

Headquarters
Western Command
Simla, India

Sir:

Ever since my visit to Fort Benning in 1949, I have been a subscriber to *The Infantry School Quarterly*. I find it of ever-increasing interest and value. In my opinion, every Infantryman should read and maintain a file of *Infantry School Quarterlies*.

Kalwant Singh
Lieutenant General

Quick Change

Fort Sill, Oklahoma

Sir:

As a company clerk I found the article "Prepare for Inspection" (October 1955) of particular interest. Your checklist, especially the section covering unit administration, will be extremely valuable in helping me maintain rigid control over my records.

However, I noticed two discrepancies which should be brought to the attention of your readers. Concerning the disposition of records as discussed in paragraph 1d under "Unit Administration," SR 345-250-40 has been superseded by AR 345-292 dated 2 August 1955.

Also, UP paragraph 1b (1) Appendix I AR 345-292, separate communications are no longer numbered in the upper right corner of the first page as stated in the article but are now numbered on the lower right corner of the first page.

George B. Crofut
Sp 3

Many thanks to Sp 3 Crofut for keeping us up to date. DA was a little too fast for us — the new AR came out just as the Quarterly was in the final flurry of editing, rewriting and proofreading for the October issue.—Editor

Infantry Speaks Up

Fort Benning, Ga.

Sir:

Here is one Infantryman who was pleased to learn that CONARC has formed a special staff section for Infantry (see "Infantry Speaks Up" by Maj Gen A. D. Mead in the October 1955 issue). It's about time the Queen of Battle had someone in a high-level position to speak up for her.

What are the chances for more information about this important new staff section?

Robert L. Smith
Capt, Inf

Glad you asked. We're planning to offer many more articles by members of the Infantry Section, CONARC, in the near future.—Editor

Editor's Page

Dear Reader:

The Ranger Department was established at The Infantry School in 1951. Since then, thousands of students have graduated and carried the Ranger principles of leadership to units all over the world. Actually, Rangers fought in America as far back as 1756. On this 200th anniversary, we salute the Rangers with an article on p. 6. We believe you will enjoy reading this historical account of Ranger operations since the French and Indian Wars.

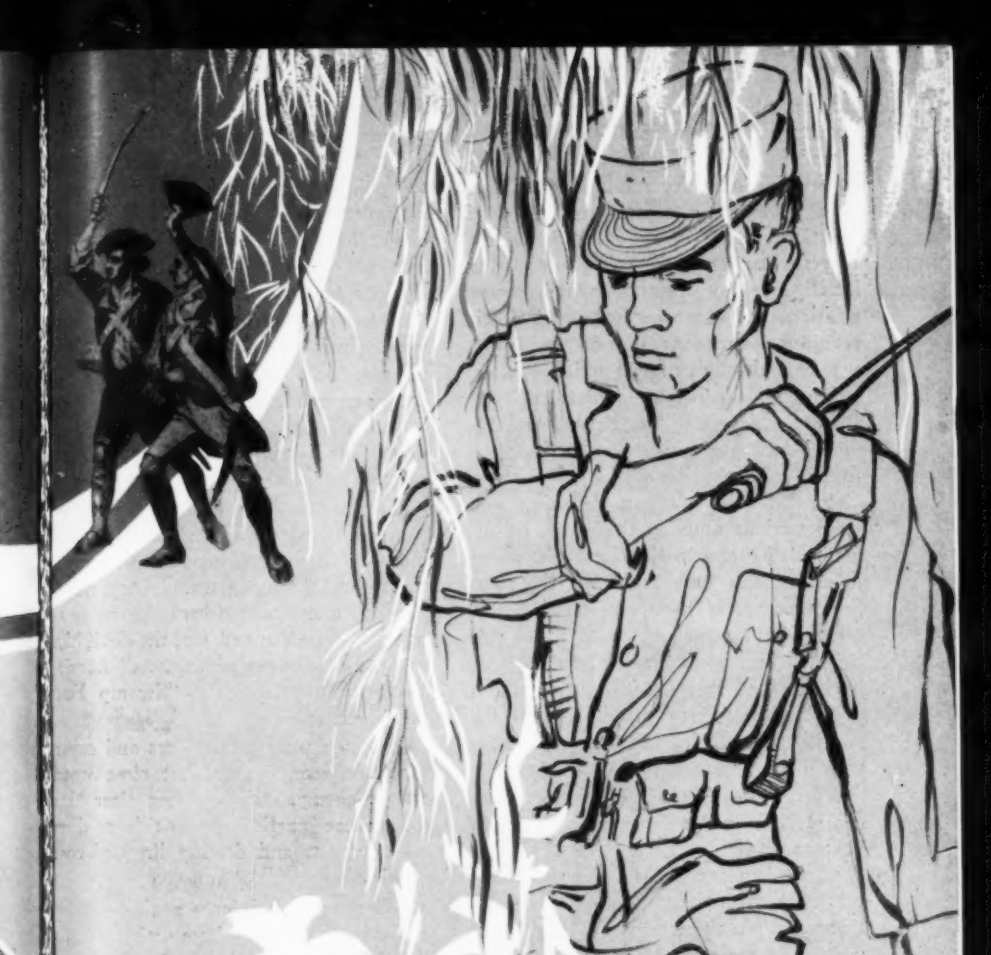
Bridging the gap—and bringing us up to date in this issue—are two articles concerned with the problems of air mobility. This is a field of study which we think you'll be hearing a good deal more about. Witness the establishment of the Airborne-Army Aviation Department at The Infantry School in February 1955.

Whether it's new or old (but we'll be keeping the accent on the *new*), if there's a subject that's of interest or value to Infantrymen, you'll be reading it in *The Infantry School Quarterly*—The Magazine for Infantrymen. That's our new year's pledge to you.

The Editor

In the sweltering swamps of Florida Rangers learn about jungle operations.

Epic of the Rangers



During the past 200 years, Rangers have smashed and slashed their way into a permanent place in United States military history.

Since the first American Rangers were organized by Major Robert Rogers in 1756, Ranger units have attracted men of courage and daring whose skill in fighting has been unsurpassed. Combat commanders have often called upon the Rangers whenever there was a dangerous, dirty job to be done and seldom — if ever — have they been disappointed.

Nine companies of Rogers' Rangers fought in the French and Indian Wars from 1756 to 1763. They took part in Wolfe's expedition against Quebec and in the Montreal Campaign of 1760. Amherst sent them to take possession of Detroit and other northwestern posts surrendered by the French. While in the West in 1763, they fought against Chief Pontiac in the Battle of Bloody Ridge.

The original Rangers — and their proud successors

ever since — were skilled in woodland warfare and able to travel great distances regardless of obstacles presented by snow-covered prairies, icy mountain trails or swollen, swirling rivers. As the chief scouting force of the British Army, Rogers' Rangers were bold in procuring intelligence by reconnoitering enemy positions and capturing prisoners. Their reputation for courage and endurance was won through rugged action.

The type of fighting developed by Rogers' Rangers in the French and Indian Wars was further evolved and refined during the Revolutionary War by Colonel Daniel Morgan. Selecting men from various units in the army, he organized Morgan's Riflemen. Burgoyne described this unit as ". . . the most famous corps of the Continental Army, all of them crack shots. . . ."

Their uniforms were fashioned of buckskin and they used Indian methods of fighting in forests; they killed with the frontiersman's rifle. Man for man, they were without equal.

Morgan's Riflemen fought magnificently at the Battle of Freeman's Farm in September 1777. At the Battle of Cowpens in January 1781, they inflicted heavy losses on the main body of British troops. Both successes were due, in a large part, to proper use of cover and surprise.

Francis Marion organized another famous Ranger element during the Revolution. Varying in size from several hundred to a mere handful, the unit fought with and independently of Washington's army. Along with the forces of Sumter and Greene, it contributed materially to the defeat of the British by disrupting communications and preventing the organization of persons loyal to the Crown.

In 1775, Marion's men took part in the capture of Fort Johnson and in the victory at Charleston — which gave the southern colonies a three-year respite from the fighting. They were instrumental in the capture of Fort Watson. In 1781, they seized Fort Motte, S. C. (a key point on the British line of communication between Camden and Charleston). Marion's unit manned the first line at the decisive Battle of Eutaw Springs and took many prisoners.

A favorite retreat of Marion's fighters was Snow's Island surrounded by deep swamps and abounding in game. By mounting sudden strokes in all directions from the island, Marion was able to kill or capture bands of Tories gathering to aid the British.

Tarleton, ordered to destroy Marion's band, pursued the colonials through 2 miles of swamp and marsh. Arriving at the seemingly impenetrable Ox Swamp he stopped and turned back, saying to his men ". . . the damned fox, the devil himself could not catch him. . . ." Marion has been known as the "Swamp Fox" ever since.

His men were good riders and expert shots. As scouts, they kept close watch on the enemy, striking blow after blow to capture parties of British soldiers, raid outposts and destroy lines of communication.

There was no defense against the hit-and-run marauders whose activity forced the British to keep their red-coated regulars in conquered regions. Marion's guerilla fighting raised havoc with the occupation of the South (which depended on a string of military posts through North and South Carolina). His rapid movements and surprise thrusts cut communications between posts and threw the system of government and military surveillance into confusion.

During the Civil War, specially trained Ranger units again were created. Although the Confederacy quickly capitalized on their usefulness by authorizing the formation of partisan Ranger units, it was not until the spring of 186

hat the Union Army employed ranger tactics.

The first of the Confederate units was Mosby's Partisan Rangers. In January 1863, John S. Mosby (who had served as a scout during General J. E. B. Stuart's ranger-type raid of June 1862 against McClellan's army on the Chickahominy) began independent operations as a Ranger in Loudoun County, Virginia. From an original strength of nine men, Mosby's forces grew to eight full companies by the end of the war.

Mosby's initial operations consisted mainly of disrupting communications and capturing prisoners, horses and supplies. His first real success occurred at Fairfax Courthouse, Virginia. Well within Federal lines, this hamlet served as headquarters for Colonel Wyndham, an Englishman fighting with the Union Army. Mosby, with 29 men, decided to snatch Wyndham from the midst of thousands of soldiers protecting the roads west of Washington.

Under cover of darkness, the raiders passed through Federal outposts in the woods north of Centerville. They cut the Fairfax-Centerville telegraph line to prevent the Federals from sending for reinforcements. At 0200 hours, Mosby's men reached Fairfax and found a token force guarding the headquarters. A captured soldier informed them that Colonel Wyndham had left for Washington but that Brig Gen Edwin H. Stoughton was at headquarters. In an hour Mosby and five men captured the general and mem-

Ranger swamp operation.

bers of his staff. Not a shot was fired.

Shortly after this escapade, Mosby's men were mustered into the regular Confederate service. Initially, they formed Company A, 43d Battalion, Partisan Rangers, 1st Virginia Cavalry.

For the remainder of 1863, the Rangers destroyed Federal trains, captured supplies and reported on the movements and dispositions of enemy troops. At one time they intercepted a dispatch from General Joseph Hooker to one of his cavalry commanders. Stuart reported "... the fearless and indefatigable Major Mosby was particularly active and efficient. His information was always accurate and reliable."

By August 1864, five partisan Ranger companies had been formed — each with a minimum strength of 60. A raid during this month netted 200 prisoners, more than 500 horses and mules, 200 beef cattle and $112,000 in payroll cash.

An attempt by Federal troops, in the fall of 1864, to build a railroad westward from Manassas Gap had to be abandoned after raids by Mosby's Rangers. They fired railroad cars, tore up newly laid track and scattered construction parties.

General Sherman vouched for the effectiveness of Mosby's operations: "During the entire campaign I had been annoyed by guerilla bands under such partisan chiefs as Mosby, White, Gilmore, McNeil and others, and this had considerably depleted my line-of-battle strength, necessitating as it did large

Rangers and their wounded buddy.

escorts for my supply trains. The most redoubtable of these leaders was Mosby."

Mosby's men were tough fighters and rough riders. After each engagement the command scattered to meet later at a prearranged time and place. In his organization, built up within a few miles of the enemy's capital, were men who knew every road and trail in Virginia and the location of homes of Confederate sympathizers behind Federal lines. They lashed out in the dark or whenever they could gain surprise. Mosby recruited efficient scouts, made valuable intelligence reports and worked tirelessly to outsmart the enemy.

Another famous Confederate Ranger unit was the cavalry squadron organized and led by General John H. Morgan — who has been called the greatest partisan fighter since Francis Marion. Morgan and his men began their raids in 1862 with an attack on Lebanon, Kentucky, in which they destroyed quantities of Union supplies and burned a railroad bridge.

On 4 July 1862, 800 of Morgan's Rangers left Knoxville, Tennessee, made their way through the Kentucky mountains and swept through the central and eastern portions of that state. In 2½ weeks they rode 1000 miles, captured 17 towns, destroyed 3 of Buell's supply depots along with millions of dollars worth of stores and swelled their ranks to 1200 by recruiting enroute. They lost fewer than 90 killed and wounded. The expedition raised Confederate morale to new heights for it occurred just after the Seven Days' Battle in front of Richmond. It was in this battle that Lee brought the Peninsular Campaign to an end by forcing McClellan to withdraw to the James River.

The partisans made another foray behind Union lines on Christmas, 1862. Fording the Cumberland River, they attacked the Union garrison at Hartsville, Kentucky. They took more than 2000 prisoners, killed or wounded 450 Federal troops, destroyed 4 important bridges, tore up 26 miles of railroad track and seized or destroyed $5,000,000 worth of supplies. Of the original Ranger force of 900, 300 were missing and a few were killed or wounded. This destruction of a section of the Louisville and Nashville Railroad crippled Rosecrans' supply system.

Morgan's most famous raid began in June 1863, with 2400 men. His men first attacked Green River Bridge, Kentucky, but were forced to retreat after a bitter fight. They turned to Lebanon, Kentucky, where they captured the garrison and destroyed a supply depot. With two captured steamers they crossed the Ohio River near Brandenburg, Kentucky. Moving into Carrydon, Indiana, three miles from the river, then encountered a force of 2000 well-entrenched Federals. After a hard-fought battle, the Union troops were defeated and a thousand prisoners were taken.

But reinforcements were soon dispatched against the marauders and gunboats started down the river to intercept them. Following the Ohio River, Morgan's men came within a day's ride of Lake Erie, making the northernmost penetration of any Confederate force during the war. Morgan planned to recross the Ohio River near Ravenswood, Ohio, but he encountered 3000 enemy troops along the river. The Federals were forced back and, at Buffington Island, 1800 Union troops were dispersed — with 700 of them taken prisoner.

During each of these encounters the Rangers suffered serious losses. On 26 July, they were forced to surrender. Fewer than 400 men were able to make their escape across the river and return to Confederate lines.

While successfully evading superior forces for four weeks, they destroyed

enemy supplies, dispersed Northern troops and made what was probably the most famous single raid of the Civil War. According to one Union colonel, Morgan's raid changed the whole aspect of military operations in Tennessee and Kentucky during the summer and fall of 1863. This expedition delayed Burnside's movement on Knoxville, preventing his 28,000 men from joining Rosecrans before the Battle of Chickamauga, which might then have resulted in a smashing victory for the North.

In April 1863, the Union Army began to use the tactics of long-distance cavalry raids developed by Forrest and Morgan. Yankee cavalry rode deep into enemy territory to strike at remote bases and lines of communication.

On 10 June 1863, Brig Gen Alfred Pleasonton was ordered to cross the Rappahannock with a strong column of cavalry to reconnoiter Confederate forces near Brandy, Virginia. Pleasonton's movement surprised and surrounded the Confederate cavalry commanded by Jeb Stuart — justly famous for his own raiding tactics. As the two forces fought the largest cavalry battle of the war, Federal troopers reached Stuart's headquarters and seized papers which revealed part of Lee's plan for the invasion of the North.

At the end of the Civil War, the Rangers and partisans were disbanded. The army had no Ranger units or ranger-type training until World War II, when combat commanders quickly recalled the historical effectiveness of Ranger operations. Patterned after the British commandos, Ranger battalions operated in the Mediterranean, European and Pacific theaters.

Major (later Brig Gen) William O. Darby organized the 1st Ranger Battalion in Northern Ireland early in 1942. All members of this unit were volunteers. Six officers and 44 enlisted men from the battalion accompanied commando troops in the Dieppe raid. They learned — and in later training and operations were to apply well — a valuable lesson in German fighting methods and defensive techniques.

The 1st Ranger Battalion participated in the initial North African landings in Algeria. During the Tunisian campaign the Rangers executed a number of hazardous night attacks over difficult and treacherous terrain. The battalion fought in the critical battle of El Guettar and was awarded the Presidential Unit Citation.

Darby organized and trained the 3d and 4th Ranger Battalions in Africa toward the close of the Tunisian campaign. Combined with the 1st Battalion, they formed the Ranger Force.

Ranger battalions spearheaded the 7th Army landings at Gela and Licata during the Sicilian invasion and played a leading role in the campaign which resulted in the capture of Messina.

In the battle for Salerno on the Italian mainland, the Ranger Force fought for 18 days to hold Chinunzi Pass against eight German counterattacks. At Venafro, the Rangers engaged in fierce, winter mountain fighting to clear the entrance to the narrow corridor leading to Cassino.

At Anzio, they were ordered to overcome beach defenses, clear the town and form a defensive perimeter. The Rangers seized the port facilities, protected them from sabotage, destroyed a number of defensive artillery positions near the town, secured the beachhead and neutralized the heavily mined wharves and beaches. In 15 days (from 22 January 1944 to 5 February 1944) their casualties included 3 killed in action, 23 wounded and 374 missing.

After 67 days on the beachhead, the original volunteers of the 1st, 3d and 4th Battalions were ordered back to the

Students are trained to move quickly and quietly.

United States. The remnants of the Ranger Force were transferred to the American-Canadian Service Force which was holding the lower stretches of the Mussolini Canal. Only 200 Rangers from a force of 1500 survived the battle which resulted in the capture (on 25 May 1955) of Cisterna di Littoria — a town which straddled the Appian Way and the Rome-Naples rail line.

The 2d and 5th Ranger Battalions participated in the landings on Omaha Beach on D-day, 6 June 1944. As the Rangers tried to scale the 100-foot cliffs, the Germans took them under heavy machine gun fire and dropped grenades among the men on the beach. But, in half an hour, all the Rangers — including the walking wounded — reached the top.

The two battalions formed the Provisional Ranger Group attached to the 116th Infantry, 29th Division. They captured the Pointe de Hoe coastal battery and assisted in the capture of Grandcamp.

As the beachhead buildup continued, the 5th Battalion was ordered to seize another important objective. The Rangers assaulted and captured three forts which formed part of a chain of strongpoints extending seven miles from the Bay to Brest to Recouvrance.

In September 1944, the 2d and 5th Battalions — attached to Task Force Sugar of the 29th Division — drove through numerous outpost strongpoints to reach the German MLR. Task Force Sugar's next mission was the clearing of the Le Conquet Peninsula. The 2d

Battalion broke into the 280mm gun positions of the Batterie Graf Spee and forced the surrender of the Le Conquet garrison commander.

The 5th Ranger Battalion, attached to the 94th Infantry Division in February-March 1945, aided the armored breakthrough which overran Trier and brought elements of the XX Corps to the banks of the Rhine. Under cover of darkness, Rangers infiltrated enemy front-line positions and seized the high ground commanding the main German supply route west of Zerf. Two counter-attacks were repulsed and, in five days of fighting, they killed 378, wounded an estimated 550 and destroyed 40 armored vehicles.

Ranger units saw action in every battle in France.

The 6th Ranger Battalion — operating in the Pacific — formed the nucleus of a rescue force which, in February 1945, liberated American and Allied prisoners of war from the Japanese stockade at Pantagian in the Philippines. With negligible casualties they made a 29-mile forced march into enemy territory, obtained the support of local civilians and guerillas, determined enemy dispositions, crawled nearly a mile through flat and open terrain to assault positions, destroyed a Japanese garrison almost twice the size of the attacking force and—in the dark—assembled more than 500 prisoners. The prisoners were evacuated from the stockade 20 minutes after the beginning of the assault. In a column which stretched for 1½ miles, they walked to safety through 19 miles of enemy territory.

When fighting broke out in Korea in June 1950, Rangers were needed once again. On 25 August 1950 at Camp Drake, Japan, the 8213th Army Unit was organized from volunteers of every Infantry division in the Far East. The 8213th, known as the 8th Army Ranger Company, was attached to the 25th Infantry Division. The company took part in the drive to the Yalu and spearheaded Task Force Delvin and Operation Killer.

As the need for these skilled fighters became more acute, 14 Airborne-Ranger companies were formed and trained at the Ranger Training Command, Fort Benning, Georgia, between September 1950 and September 1951.

The 1st, 2d, 3d, 4th, 5th and 8th Ranger Infantry Companies (airborne) were assigned to divisions of the 8th Army. These units were deactivated in September 1951 — so that ranger-trained personnel could be spread throughout the Infantry to raise the spirit and efficiency of the foot soldier.

In September 1951, the Ranger Department of The Infantry School was established at Fort Benning to train

mpany-grade officers and NCO's in adership and command problems in he field.

The course, as it is conducted today, is lesigned to improve the physical condiion of the students and instill pride in heir personal appearance, habits and onduct. During their seven weeks of instruction, future Rangers learn the meang of — and necessity for — discipline n a military unit.

Students are trained in the use of the nap and compass. They learn to move uietly and quickly, day or night, over ll types of terrain. They lead their own patrols and accomplish their own missions with no assistance from an instructor.

To show that they are leaders, all students undergo a series of specially prepared hazards which challenge the average man's fear of fire, height and deep water.

In the sweltering swamps of Florida hey learn about jungle operations and ow to deal with tropical reptiles; in the oothills of the Blue Ridge chain in northern Georgia, they are taught to climb rugged hills and to span a gorge with a strand or two of rope.

Their final exam comes when they plan nd execute the destruction of a dam. During this 72-hour test of ingenuity and endurance, their patrol travels cross-country for 50 miles—on short rations.

Today's Rangers are skilled in the techniques which made Rogers' Rangers so deadly efficient 200 years ago. Their uniforms have changed from buckskin to fatigues—but their courage, daring and stamina are the same. They may travel by C-119 instead of by horse—but they're still ready for the toughest, dirtiest fighting the army has to offer.

EPIC OF THE RANGER

1756 - 1956

This year marks the 200th anniversary of the organization of the first Ranger unit in America. Now, approximately 450 volunteers graduate each year from the gruelling Ranger course at Fort Benning. These men are skilled in the techniques which have made Rangers respected and famous throughout the world. The Infantry School Quarterly, *through this article by members of the staff of the Ranger Department, The Infantry School, acknowledges the proud record of battle success achieved by these volunteers.*

—Editor

AND THERE I WAS . . .

Trapped in the jungle by a terrible-tempered mastodon. He just couldn't understand that nobobdy—but nobody—can borrow my ISQ until I've finished reading it.

When somebody tries to borrow your copy of *The Infantry School Quarterly*, give him a subscription card—he'll get the idea.

FLAME in a package

nneth F. Carter

Every Infantry rifleman who has had to assault a well-prepared position has felt an urgent need for a special-purpose weapon. When he has done all he can with his rifle and grenades to dislodge stubborn enemy riflemen and machine-gunners from their bunkers, he feels a strong, if fleeting, sense of frustration. He wishes he could use his bayonet like a can opener to gouge the enemy out of his cover.

Back in 1944, when my outfit was in Alaska, I had a mild brain wave that seemed to suggest a more practical weapon for the job. I had a clear picture of every member of the assault squads, except the AR men, starting out on their mission with an individual flamethrower. I realized from the outset that this flamethrower would have to be extremely light so it would not tax the rifleman's strength; its design could not be so cumbersome that it would prevent the rifleman from firing his primary weapon or restrict his mobility; it would have to be so simple to operate (load, aim and fire) that the rifleman could learn all he needed to know about it from a 10-minute demonstration or a short paragraph of written instructions; it had to be capable of producing at least one *effective* flame shot; and finally, it had to be cheap enough to warrant discarding it as soon as it was used so the rifleman could continue the assault and mop-up operations with his principal weapon.

I made a mechanical sketch of the flamethrower I had in mind and took it and my idea to the department chemical officer and the G4. They bought both idea and sketch and put me on temporary duty status so I could develop a working model.

The ordnance officer loaned me Sergeant Henry Kurtz, a fugitive from Georgia Tech and a fine catch-as-catch-can machinist. About Christmas time of that year we tested our first model. It consisted of a simple tube capped at the rear with a detachable nozzle at the muzzle.

The tube, which contains the fuel and compressed nitrogen propellant, was built from the front drive shaft of a GMC truck, honed to smoothness. The compressed nitrogen is contained in a bottle similar to the one that is used to inflate life rafts. The mechanical details of the weapon are shown in Figures 1 and 2.

The flame gun is easy to ship, load and fire. To be carried by regimental am-

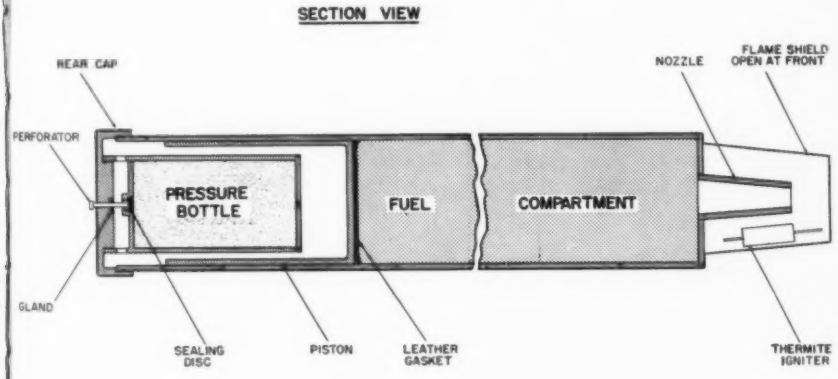


Figure 1.

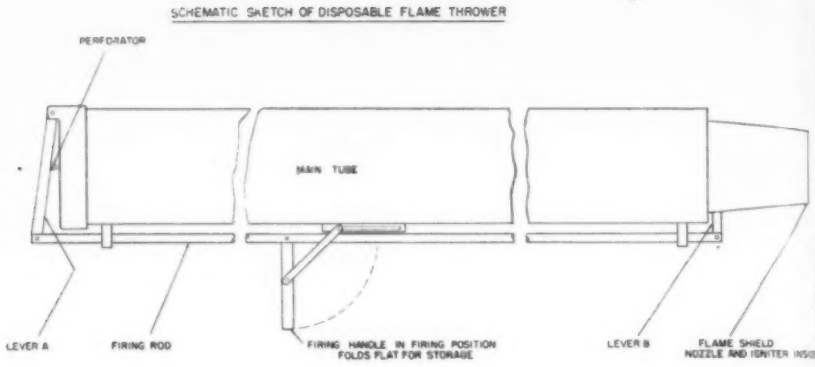


Figure 2.

munition trains, each gun would be packed in a container similar to the one used for artillery shells. Each container would also hold sealed packets of napalm and peptizer. The fuel could be mixed in the larger half of the container when no other vessel is handy. The top half of the container could be used to funnel the mixed fuel into the muzzle of the tube. The separately carried nozzle is screwed into the muzzle as the final step in loading.

The gun can be fired from the shoulder or cradled in the arms. All the firer has to do is pull the safety pin, then pull the firing handle.

When Sergeant Kurtz and I demonstrated our individual, disposable flamethrower to the local officials we got a gratifying reaction. We were put on a plane with our baggage and experimental gear and flown to Edgewood Arsenal to attend the first flamethrower school held there.

We found that Edgewood had been working on a concept that paralleled ours. The arsenal had produced a flamethrower that weighed a little more than 33 pounds. While this is lighter than the standard flamethrower, it is still too heavy for the purpose we had in mind. Our single-shot model weighed 1[illegible] pounds and we believed this could b[illegible] reduced to 15 pounds if other material[illegible] were substituted for the makeshifts tha[illegible] were available to us in Alaska.

The Chemical School favored th[illegible] larger weapon on the ground that a l[illegible] of flame is needed to completely neutra[illegible] ize any position. This goes without sa[illegible] ing, but the total flame available wit[illegible] each man in the assault squads carryin[illegible] an individual package is far greater tha[illegible] a standard flamethrower can provid[illegible] and can be used much more flexibly.

There are other advantages. The i[illegible] dividual flame weapon can be slun[illegible] across the backs of the men with a quic[illegible] release strap. This allows the men t[illegible] fight their way forward with their pr[illegible] mary weapon. Then, when flame is need[illegible] ed on a stubborn bunker, several men ca[illegible] give it a shot, discard their flamethrow[illegible] ers, and continue the fight with thei[illegible] rifles. Or one man, possibly the squa[illegible] leader, can use the flamethrowers of tw[illegible] or three of the men while they keep u[illegible] the fire with their primary weapons.

The man who carries the standar[illegible] flamethrower into battle is marked b[illegible] his bulky equipment. He becomes th[illegible] target of every weapon the enemy ca[illegible]

bring to bear on him. When he has exhausted his fuel, he becomes an unarmed, defenseless man, still burdened with his heavy equipment. He must spend a lot of time learning to service and fire his weapon. He must fiddle with pressure gauges and fancy nozzles. Furthermore, he represents a textbook example of the imprudence of putting all of your eggs in one basket. If he becomes a casualty early in the fight, the assault troops have no flame.

Note how our portable flamethrowers eliminate these drawbacks. There are no bulky and heavy fuel and pressure tanks, no gauges to adjust, no extra nozzles. A man can learn to service and fire them in twenty minutes. When a soldier fires his single tongue of flame, he is not left impotent on the battlefield. He throws away his flame tube and fights on. Finally, if one or two carriers of these small packages of flame become casualties, there are others who can reach and attack the target.

MAJOR KENNETH F. CARTER summarizes his army career in three words: "Supply, supply, supply." His present assignment as S4 of the 19th Infantry Regiment in Korea sees him once again working with his specialty. He received an OCS commission in 1942, completed the Advanced Course at TIS in 1944, and attended the first flame thrower course at Edgewood Arsenal.

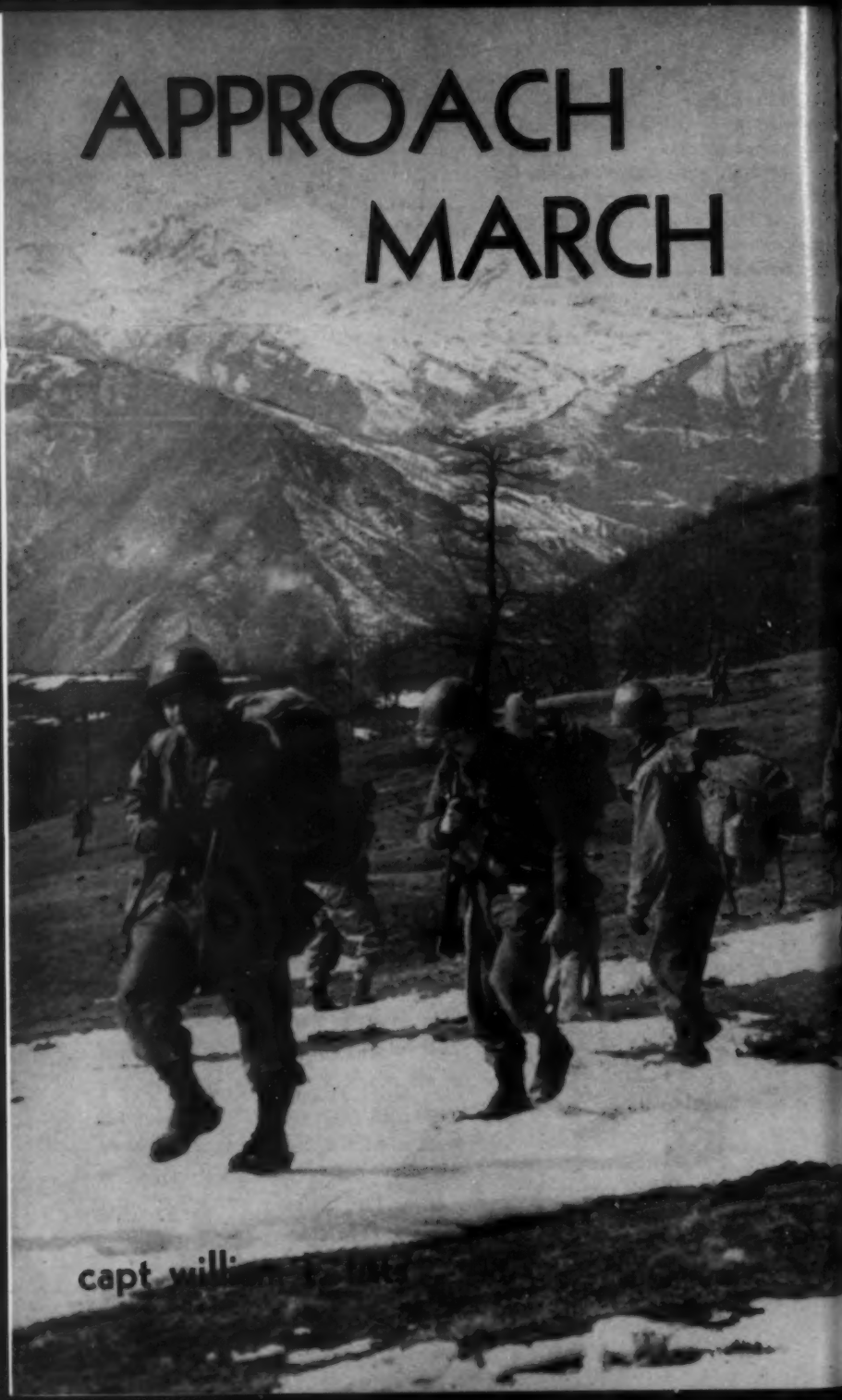
In 1954, ten years after Sergeant Kurtz and I produced our first portable flamethrower, I was told that General Clark, in Korea, had requested a flamethrower that could do the job as I have outlined it. Unless the whole concept of Infantry in the assault has gone into limbo along with the flintlock rifle and the hollow square, it seems to me that our "small packages of flame" still merit consideration.

AWAY

YOU GO

Next to vaudeville performers, Infantrymen move around more than almost anyone else. We're fast on our feet, too, but we're not mind readers. Before you put the show on the road, write: Chief, Circulation Section, *Infantry School Quarterly,* Book Department, The Infantry School, Ft. Benning, Ga.

APPROACH MARCH



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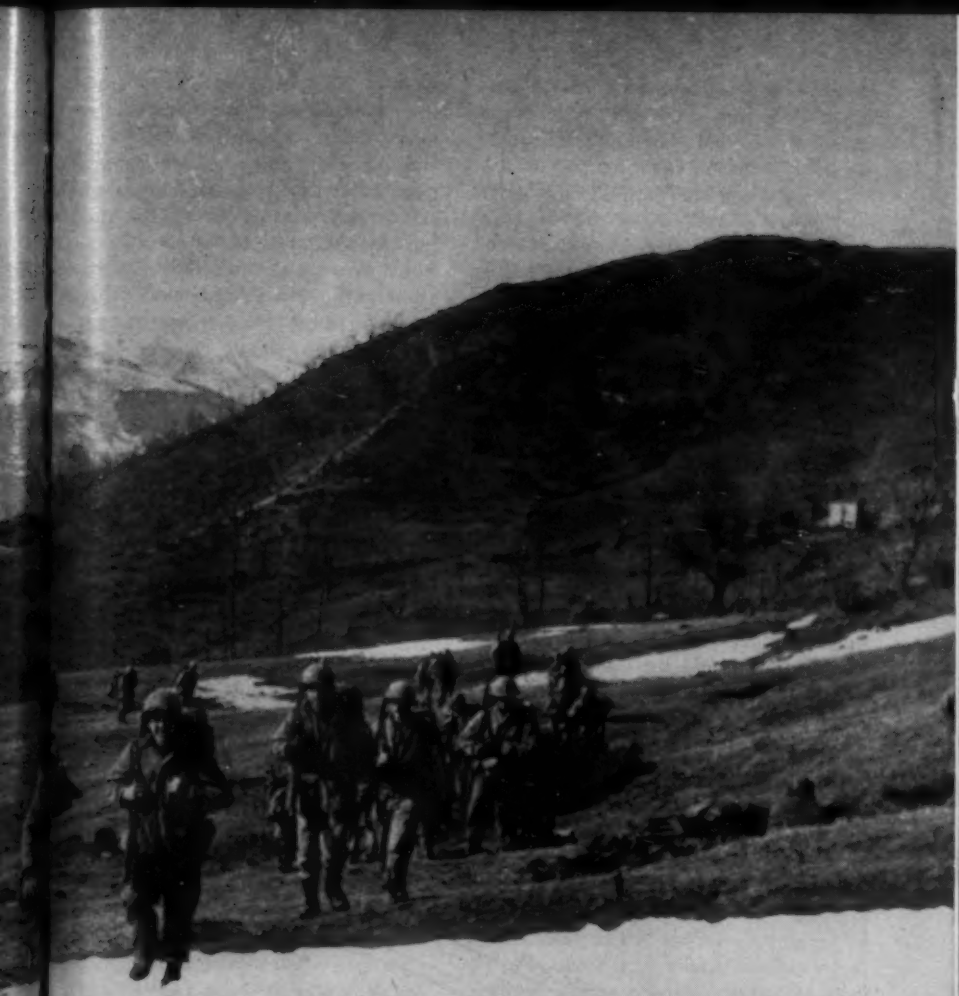


When a small delaying force holds off a larger advancing force, it gains time for the units behind it—time for them to complete their plans; to consolidate their positions; to recover their balance and get ready for battle. When an advancing force is surprised by such actions, it usually suffers unnecessary casualties and has to spend valuable time in reorganizing for the advance.

Now, when speed of movement, dispersion and aggressive action are needed more than ever before, it is essential that our forces are neither surprised nor unnecessarily delayed. We must know how to prevent small enemy units from delaying us and how to provide security during an advance. This preventive mission invariably is assigned to the smaller units that lead our forces into battle.

The senior commander of an advancing unit decides when contact with the enemy is imminent. The unit then adopts an *approach march* formation (which may be deployed or partially deployed) that provides adequate security against surprise while allowing a reasonable degree of speed and control. Considering the terrain, visibility and known enemy situation, the commander selects the best formation that will accomplish the mission. One type of deployed formation which our army has used successfully in the approach march is shown in Figure 1.

Here a battalion is acting as the advance guard for a regiment. The distances shown are guide figures only; the actual distances between units depend on the terrain. They should not be so great that succeeding units cannot come quickly to the aid of the unit ahead, nor so short that enemy fire falling on the leading unit would limit the maneuverability of the units to the rear.

The advance guard must press forward rapidly and aggressively and—at the same time—protect the main body from surprise. Its assigned mission, therefore, is twofold: (1) To prevent unnecessary delay of the forward movement and (2) To prevent the enemy from surprising the main body from the front.

The foremost unit of the advance guard is the *point*. It consists of one rifle squad which is not usually reinforced. It normally employs a diamond formation for moving cross-country and a squad column for moving along a road or trail.

The squad leader and assistant squad leader should move on opposite sides of the road. The leading 2 or 3 men should be separated by at least 20 paces, and the remainder of the squad by at least 10 paces.

The point squad has the same missions as the advance guard. To accomplish them, it has to be aggressive. Generally, it should attack any enemy who is capable of placing small arms fire on the squad or on the route of march.

The squad leader continually analyzes the terrain as he moves along the route. He should always anticipate enemy con-

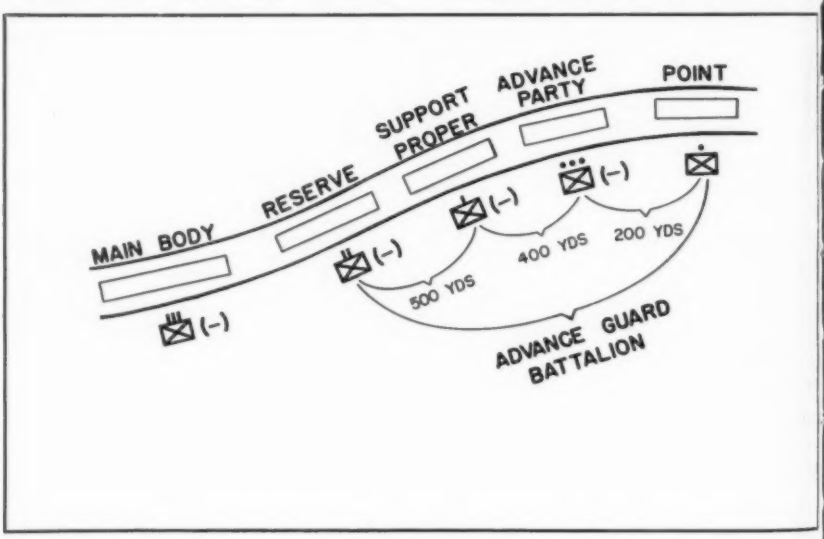


Figure 1.

tact and discuss, with his assistant and the other squad members, possible actions which the squad might take.

When the point squad comes under fire, the men immediately take cover and without orders attempt to locate the enemy and return the fire. They should move to advantageous positions on their own initiative, while passing information to each other concerning the enemy's location. It is *essential,* however, that they remain where they can be controlled by the squad leader or the assistant squad leader. These leaders make certain that all men are firing and using all of the weapons available to the squad, including rifle grenades, to gain fire superiority.

The squad leader makes a rapid estimate of the situation and determines how to attack, using fire and maneuver. He considers his mission; the location of other friendly units, such as the flank guards; the distance to the enemy; visibility and the terrain. The enemy may appear to be strong but the squad should always attempt to attack. This attack by fire and maneuver, even if it does no more than return the fire, may discourage an enemy delaying position and force it to withdraw. The attack will at least develop the enemy's position, and assist the attack made by the advance party.

In organizing his attack, the squad leader should plan to lead the maneuver element. When he has decided which men are to fire and which are to maneuver, he gives his instructions forcefully. To insure that all men understand the plan, he should have them relay the instructions rapidly, and use the assistant squad leader to control the fire element. The men of the fire element, under the control of their leader, may move forward by individual rushes to gain better firing positions.

When the squad has started moving in the attack, the squad leader should contact his platoon leader by radio. He *briefly* tells the platoon leader about the enemy situation and the action he is taking. He must not, however, allow the radio transmission to interfere with the rapid accomplishment of his mission. If he is unable to contact the platoon leader, he should ignore it and pursue the attack.

The squad leader may use any of several methods of attack, which utilize fire and maneuver, to close with the enemy and assault his position. The method he chooses will depend on the terrain and, therefore, cannot be governed by SOP or entirely determined before encountering the enemy. Two schematic diagrams of some of the methods are illustrated on pages 24 and 26.

If the point squad is unable to advance, it should keep the enemy under fire to assist the advance party in gaining fire superiority. It should attempt to move forward whenever possible, consistent with the platoon plan of attack. After the assault, the squad leader reorganizes his squad, gives a report to his platoon leader and continues his mission. The platoon leader, however, may designate another squad as the point squad. The point is always under a strain—mentally, physically and psychologically—and the assignment should be rotated frequently for maximum efficiency.

The next unit of the advance guard is the advance party, which consists of a reinforced rifle platoon minus the one squad sent forward as the point. The platoon usually has a 57mm recoilless rifle squad and a 60mm mortar squad attached to it. An aid man and a forward observer from the 81mm mortar platoon usually move with the platoon. The company commander may assign a ¼-ton truck and trailer to the advance party, to carry a mixed load of ammunition and some of the attached weapons.

When moving along a road or trail, the platoon should use a column formation, with five paces between men. When

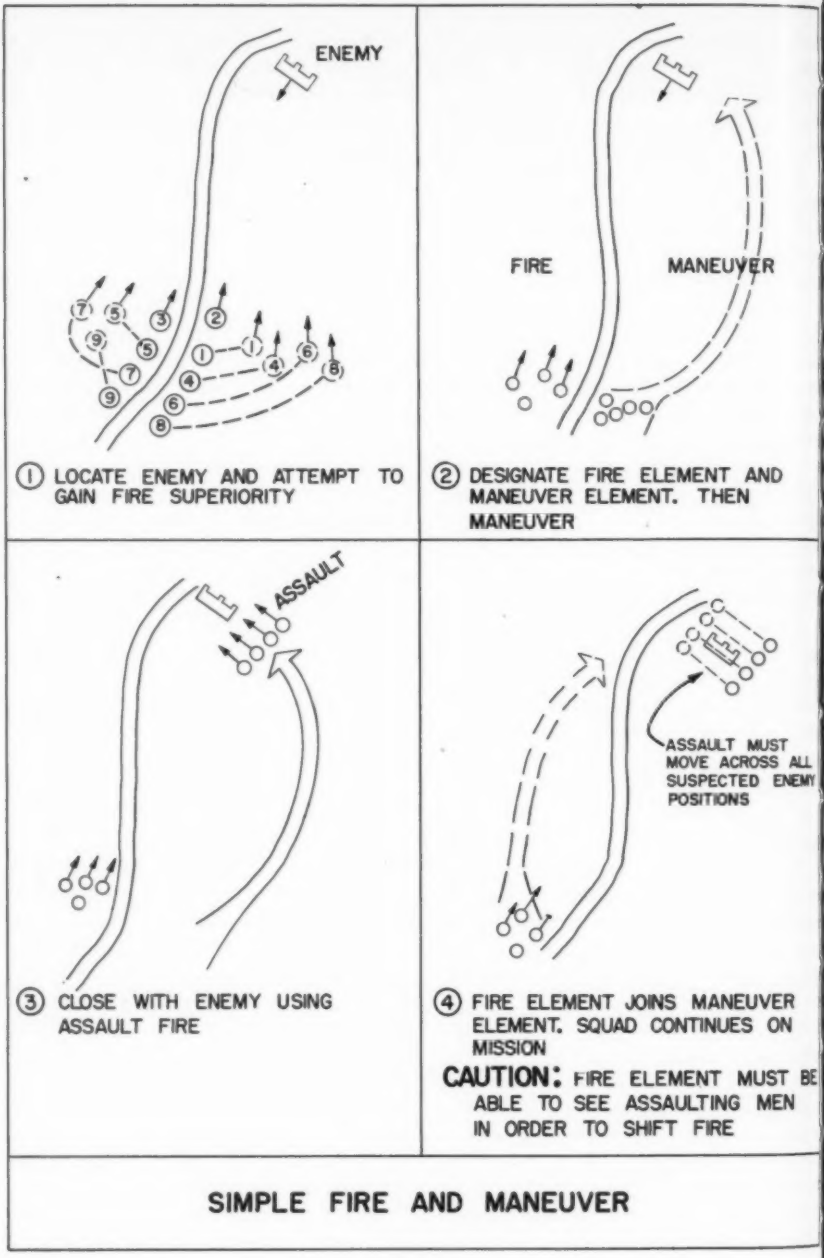

ENEMY
① LOCATE ENEMY AND ATTEMPT TO GAIN FIRE SUPERIORITY
FIRE
MANEUVER
② DESIGNATE FIRE ELEMENT AND MANEUVER ELEMENT. THEN MANEUVER
ASSAULT
③ CLOSE WITH ENEMY USING ASSAULT FIRE
ASSAULT MUST MOVE ACROSS ALL SUSPECTED ENEMY POSITIONS
④ FIRE ELEMENT JOINS MANEUVER ELEMENT. SQUAD CONTINUES ON MISSION
CAUTION: FIRE ELEMENT MUST BE ABLE TO SEE ASSAULTING MEN IN ORDER TO SHIFT FIRE
SIMPLE FIRE AND MANEUVER

Figure 2.

moving cross-country, it adopts a formation consistent with the mission, the terrain and the need for control, security and flexibility. The formation must allow the platoon to move at a normal rate of march.

The platoon leader prescribes the order of march according to the order in which he anticipates using his squads. A typical order of march is shown in Figure 4.

The command group consists of the platoon leader, platoon sergeant, messenger, aid man and the observer from the 81mm mortar platoon. When the point encounters the enemy, the platoon leader moves forward to determine what action to take, leaving the platoon sergeant in charge of the advance party. When the advance party halts, all-round security should be established, and the crew-served weapons put into position to cover likely avenues of approach.

If the point is stopped, the advance party commander must be ready to commit the entire advance party as soon as possible. He should take the following actions to avoid an unnecessary commitment or to allow a rapid, well-coordinated attack should it be required:

1. Whenever firing is heard to the front, he moves forward immediately to the vicinity of the point squad leader. On the way forward, he anticipates committing the advance party and studies the terrain. He contacts the point squad leader, if possible, and determines whether or not the squad is actually stopped by a superior force. If the squad has not made an all-out effort, but it appears to have the capability of overrunning the enemy, the platoon leader should exert his personal influence on the squad leader to get the squad into action. This will prevent unnecessary delay that would result if the entire advance party were committed against a force which an aggressive squad could overcome. However, if it is readily apparent that the point is stopped by a superior enemy force, the platoon leader must immediately commit the entire advance party, using all available weapons and men. An attempt to reinforce the point squad by piecemeal employment of the crew-served weapons or squads might well result in failure. A maneuver with the two remaining rifle squads, to hit the enemy's flank, should be attempted when possible. The platoon leader makes a quick reconnaissance from a vantage point, and determines a preliminary plan. He should tell the observer for the 81mm mortar to call for fire on the objective.

2. He immediately sends the messenger back to the platoon sergeant with the following information:

a. What *weapons* to send forward immediately. (Many times it will be possible to employ crew-served weapons in the vicinity of the point squad to support the maneuver. These men can receive fragmentary orders as they come forward.)

b. Where to bring the *squad leaders* to receive the attack order.

c. Where to move the *platoon*. (Moving the platoon as far forward as possible will save time later on.)

3. While the platoon sergeant starts the platoon moving forward according to the instructions from the messenger, the platoon leader continues the reconnaissance. He firms up the fire support and maneuver plans, ascertaining that decisions have been reached concerning the employment of all units and weapons.

4. He meets the crew-served weapons leaders (who have been sent forward) and immediately issues fragmentary orders to get them into action.

5. He meets the squad leaders at the prearranged vantage point and orients them, issuing fragmentary orders and giving them enough information to assure a well-coordinated attack. He in-

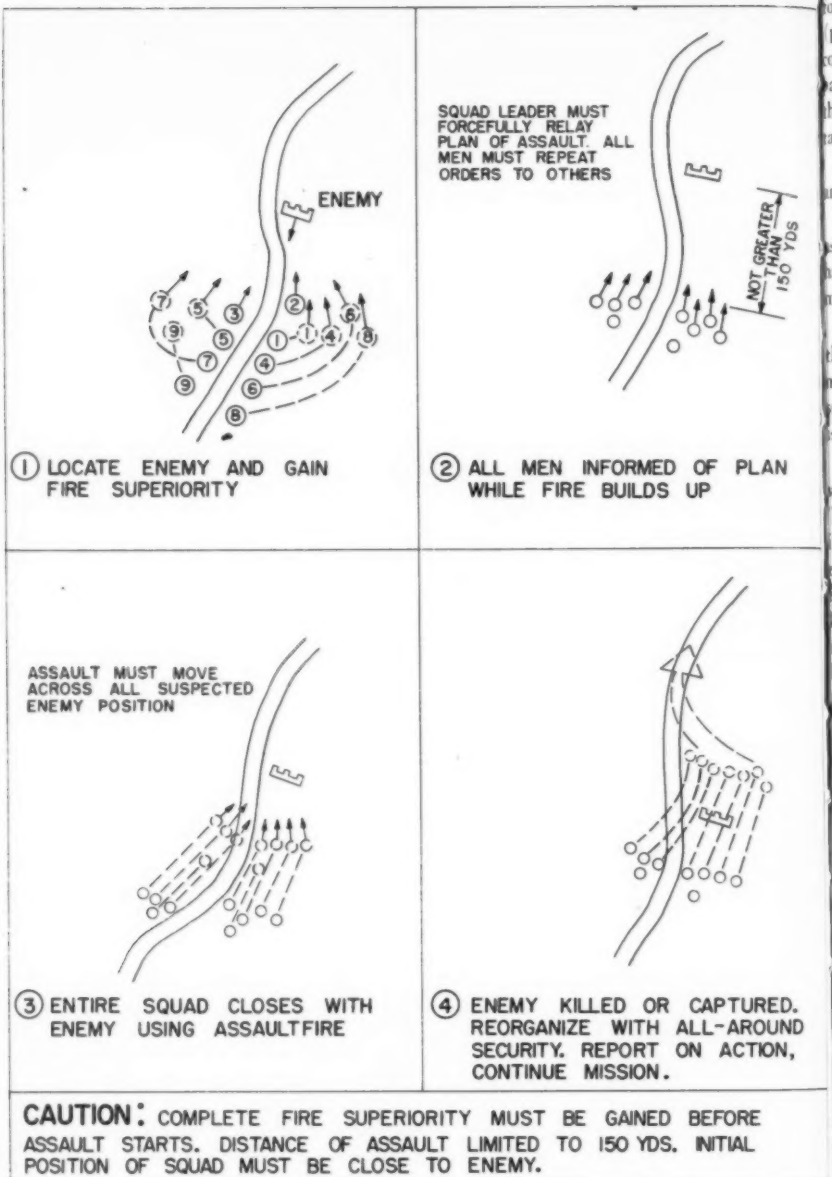

ENEMY
1 LOCATE ENEMY AND GAIN FIRE SUPERIORITY
SQUAD LEADER MUST FORCEFULLY RELAY PLAN OF ASSAULT. ALL MEN MUST REPEAT ORDERS TO OTHERS
NOT GREATER THAN 150 YDS
2 ALL MEN INFORMED OF PLAN WHILE FIRE BUILDS UP
ASSAULT MUST MOVE ACROSS ALL SUSPECTED ENEMY POSITION
3 ENTIRE SQUAD CLOSES WITH ENEMY USING ASSAULTFIRE
4 ENEMY KILLED OR CAPTURED. REORGANIZE WITH ALL-AROUND SECURITY. REPORT ON ACTION, CONTINUE MISSION.
CAUTION: COMPLETE FIRE SUPERIORITY MUST BE GAINED BEFORE ASSAULT STARTS. DISTANCE OF ASSAULT LIMITED TO 150 YDS. INITIAL POSITION OF SQUAD MUST BE CLOSE TO ENEMY.
ASSAULT FROM INITIAL POSITION

Figure 3.

forms the point squad leader of the plan (probably over the radio) and calls the commander of the support proper (company commander) to inform him about the enemy situation and the action being taken.

6. He checks the fire support weapons and the issuance of squad orders.

7. He leads the maneuver element to assault the enemy after the squad leaders have issued fragmentary orders to their men in the forward position.

8. He reorganizes and consolidates on the objective; calls the company commander; immediately designates a point squad and moves out as before, if there is no further enemy contact.

These troop leading steps will vary with the terrain and enemy situation. They are an application of the troop leading steps used in most attacks and, generally, they save time when the point encounters the enemy. A thorough knowledge of these steps is the basis of a fast, coordinated attack. The attack by the rifle platoon and the proper employment of the squads and weapons are planned and executed in a manner similar to the rifle platoon in a coordinated attack. The only real differences in the advance party's attack are that usually only two rifle squads are in the maneuver element, instead of three as in the normal attack; the platoon leader performs a limited fast reconnaissance; and the supporting fires are limited.

The advance party commander should be alert for flank attacks against the advance party itself. The enemy may let the point pass before attacking. Should this occur, the platoon leader must attack aggressively with the advance party, using a fire support plan and a maneuver plan as in the attack against the enemy to the front.

If the advance party should be stopped in its attempt to overrun the resistance, it must continue firing on the enemy to aid the support proper in its attack. Whenever possible, it should attempt to move forward, consistent with the company plan of attack.

Primary communication between the point, advance party and support proper is by radio. (The point is given one of the company utility radios.) A secondary means of communication is by connecting files sent out from the higher to the lower unit. They usually operate in pairs, passing information both ways, with the responsibility of maintaining contact with the element to their front. When the advance party is committed in an attack, the connecting files rejoin their squads.

Each unit of the advance guard formation is responsible for its own flank security. The point and the advance party are not large enough to send riflemen out to the flanks and maintain them, so each man is assigned an area of observation. Two or three men may be sent a short distance to the flank to investigate a dangerous area, but they must return to the route of march quickly so that the movement of the column will not be slowed.

The support proper is the first unit in the advance guard that is able to send squads or half squads to the flanks and maintain them. These units must be rotated frequently because the men tire quickly when moving over rougher terrain than that found on the route of march. If the road net or terrain is suitable, the units should be motorized. They should move no further than 500 yards from the route of march, where they can be supported if they encounter the enemy. Normally, these flank guards do not attack the enemy unless ordered to do so by the support proper commander. Their primary role is that of providing early warning. Motorized detachments may be sent out by the main body, or reserve, to move ahead of the point and occupy dangerous high ground until the advance guard has passed.

During temporary halts in the approach march, all-round security is provided by establishing march outposts. These are units of half-squad or squad size, sent to nearby vantage points to give early warning of enemy approach. The point squad and the flank guards then become march outposts for the advance guard.

A tank platoon is usually attached to the rifle company which is acting as the advance guard or the support. These tanks move with or near the support proper, under the control of the company commander. He can then commit them with the bulk of the company, using normal tank-infantry team tactics. When possible, the tanks move by bounds to positions from which they can assist the advance party by fire. An exception to this plan would be made when the enemy forces are disintegrating rapidly. In this case, some tanks might move with the point or advance party, pursuing the enemy to prevent his organizing resistance.

CAPT WILLIAM T. FITTS, III (USM 1950) taught platoon tactics at TIS for thr years. In Korea he was platoon leader, co pany exec and company commander with th 7th Division. He is now attending the A vanced Course at TIS.

An advance guard commander mu consider all of these factors to accompli his mission. His task is to *prevent* the en my from achieving *surprise*, and to *de prive* the enemy of *time* — the one el ment he may need the most. The form tion which the advance guard command adopts is the key to preventing surpri aggressive action overcomes the enem delaying forces. If, after an all-out effo the point squad cannot drive off the d laying force, the advance party attac without hesitation or prolonged reco naissance. This type of bold, aggressi action characterizes the entire advan guard. The forward movement of th main body depends upon it and, frequen ly, victory in battle may be traced dire ly to it.

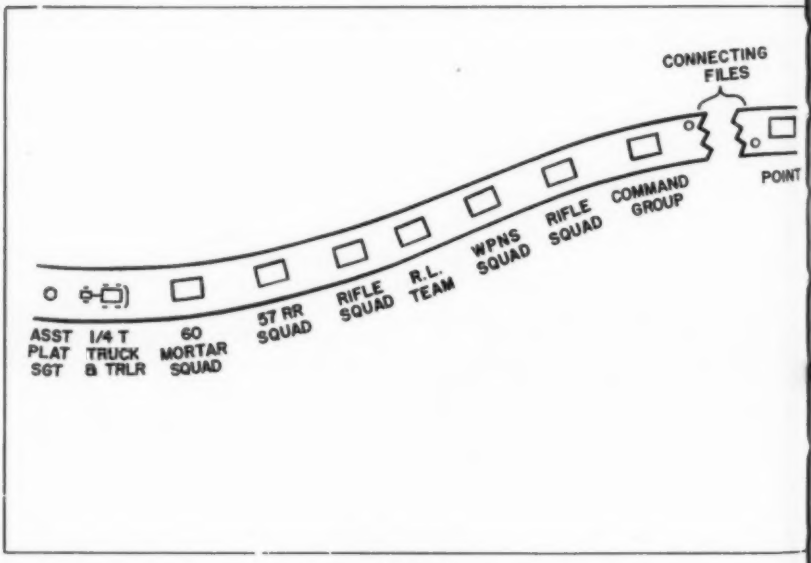
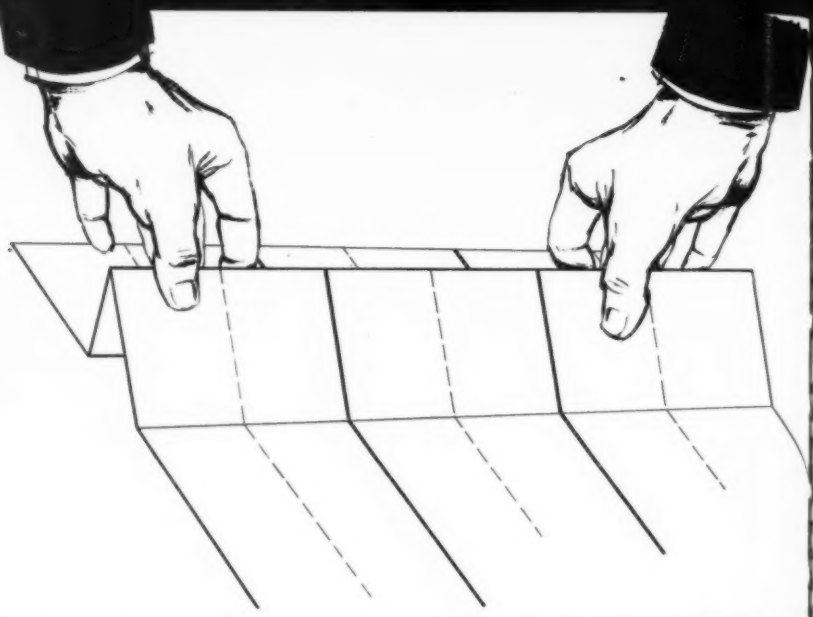


Figure 3.

MAP FOLDING

major j. r. darden

Did you ever try to read a military map in the wind and rain, with no flat surface on which to spread it? Have you ever tried to hold a map under your coat or poncho, shielding the glow of your flashlight from the enemy? If so, I think you'll agree that a map which had been permanently folded to one-ninth its original size would be very handy. Very handy, indeed, if it were arranged so that you could find any feature or sector merely by turning a flap—as you turn a page in a book — without ever having to open the sheet to a larger size. Such a map is easy to construct. To begin, get a map or a piece of practice paper, some glue or transparent tape and a razor blade.



Now we're ready to start:

1. Lay the map face up on the table.

2. Fold it in half. (Turn the bottom edge up to meet the top.)

3. Crease the folded map into three equal parts with the creases parallel to the center fold.

4. Open the map completely and lay it, face up, in the normal position. Turn it so that east is at the top and fold it in half as in Step 2 (fold the bottom to the top). Again crease the folded map into three equal parts with the creases parallel to the center fold.

5. Open the map completely and lay it face up (with north in the normal position at the top). It is now creased into 36 equal parts. Using the razor blade, cut as indicated by the heavy lines.

6. Next, position both hands in such a way that the fingers and thumb of each hand straddle the second crease from the top. Draw the paper up so it will fold at this crease and then fold over toward the top edge. Draw the paper up at the second crease from the bottom to meet the top edge. An "edge view" of the map should now look like three V together.

7. Open the map to the center secti (without unfolding the remainder) turn it so that east is at the top. Strad the second crease from the top as in St 6. Draw the paper up and fold towa the top as before. Repeat the procedu with the second crease from the botto and fold the bottom edge up to meet t top, all as in the previous step. An "ed view" will again look like three V together.

8. Allow the map to open at t middle V and to lie flat on the table, e posing the center section without unfol ing any other parts. Apply glue to t adjacent backs of the map where the cu have been made or bind the cut edg together with transparent tape. The se tors, so joined, may be turned as one pag

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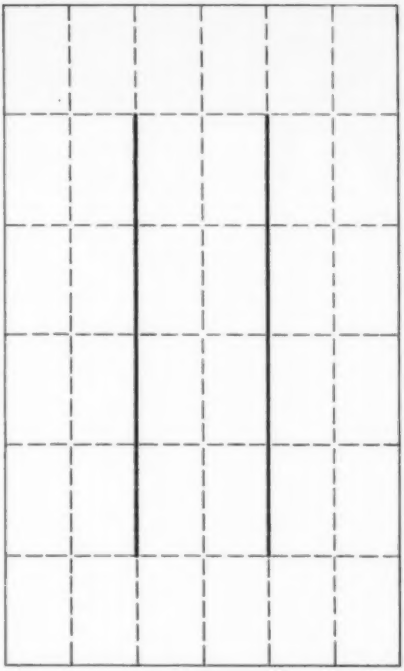
MAJ JAMES R. DARDEN was born in S Nazaire, France. He received his comma sion at USMA in 1943. He was stationed i Europe from 1944 to 1947 and later serv as commander of Company L, 7th Infantry in Korea. Maj Darden is an instructor in th Weapons Department, TIS.

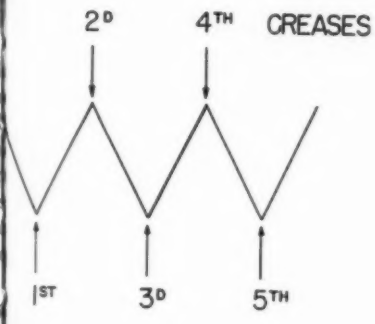
The map is now ready for use. It is 1/9 of the original size and need not be unfolded to find any feature or sector. Any point can be located by turning the flaps up and down, left and right. The map may be indexed for quicker reference by labeling the three sections of each lateral strip: "A1," "A2" and "A3" (top), "B1," "B2" and "B3" (center) and "C1," "C2" and "C3" (bottom).

If you turn the center section up or down when reading the map, you must turn the corresponding flaps on the left and right sections in the same way to remain on the same strip. For example: strip "A" is revealed when all the flaps are turned from the top toward the bottom. When you have finished with the map, return the flaps to their original position so the whole map will lie flat.

The map may be glued into a manila folder for protection and easier use; however, it will have to be opened to 2/9 size in order to find all features and sections. Simply apply glue to the four bottom back corners and aline the center crease of the map with that of the folder. If you wish to carry the map in a pocket-size notebook, fold it to 1/36 size and glue it to the notebook on one of the back corners. The map may be opened to 1/9 size for reading.



STEP 5



STEP 7

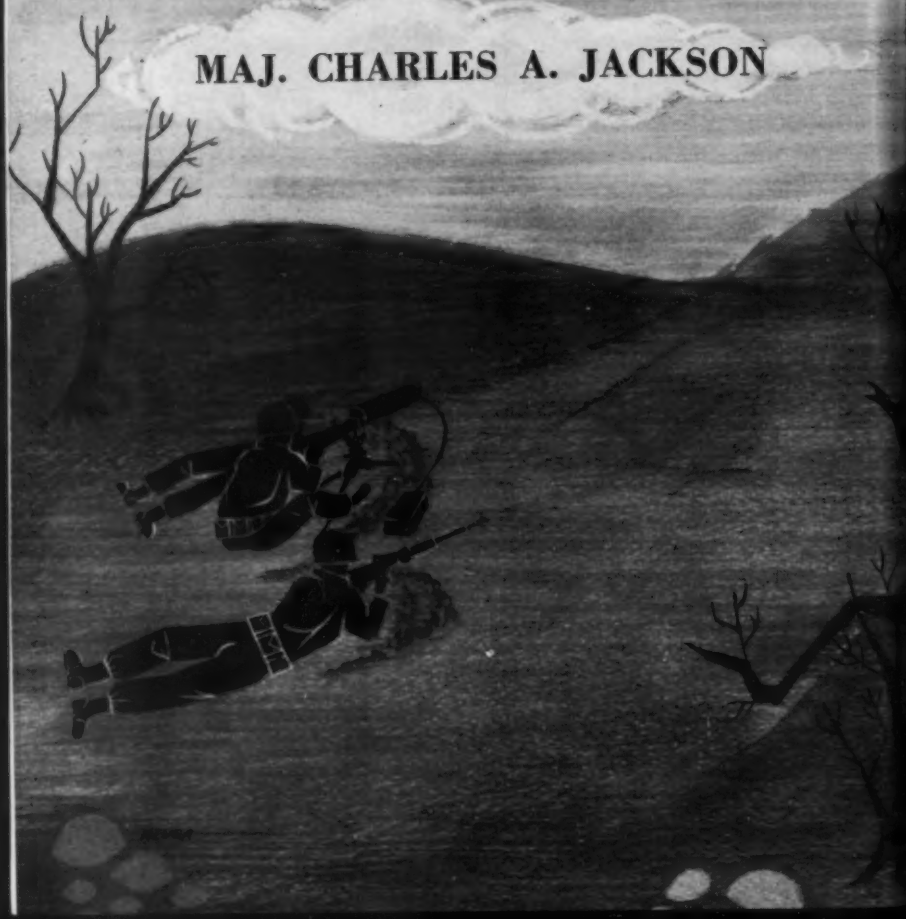
Before you actually cut your map, practice this technique on plain paper, using a straight-edged guide for the blade. This method of map folding works with all maps, including those composed of sector-sheets which have been glued together.

Simple? You bet it is. Simple and effective. To prove the value of this map-folding technique, make one of these folded maps and show it to a friend.[1] But hold on to this article — chances are, he'll want one, too.

[1]The author learned this map-folding method from a friend and does not claim to be the originator of this technique.

REVERSE SLOPE DEFENSE

MAJ. CHARLES A. JACKSON



"Take the high ground and hold it!" You've heard that before and you'll hear it again. You won't get too tired of hearing it, either, because it's a phrase that appeals to a fighting man. It means you're going to be on top, looking down the enemy's throat. You'll have all the advantages when he tries to knock you off your hill—long-range observation and good fields of fire for your flat-trajectory weapons; you can roll your artillery down on him with deadly accuracy. It's a good phrase to remember—a military maxim that is as old as warfare. We should follow that advice whenever we can, but there may be times when we won't be able to do it.

In World War II and in Korea we occupied positions on reverse slopes, on forward slopes, at the bottoms of valleys and on the crests of hills and mountains. Some relatively bad positions were forced on us by enemy action, temporary shortages of equipment or transportation or limited routes of communication. The reverse slope defense, however, wasn't always our second choice. It has certain advantages that sometimes warrant its employment as a predetermined type of defense. The advantages have not always been apparent, however, and on one occasion we learned them the hard way.

In February 1943, the 34th Infantry Division was attacking the Germans in Tunisia. Our forces attacked several times and usually the Germans elected to defend on the forward slope. On one occasion our troops suddenly came upon a German position from which they received very intense fire, but they were unable to see the Germans or their weapons positions. The 34th Division finally overran the position, but not until it had suffered heavy casualties.

The senior US commander ordered a detailed study to determine just what type of defense the Germans had used. It was, of course, a reverse slope defense—

one that was very effectively planned and executed. We adopted similar tactics, using them successfully in the hills of Sicily and Italy and, more recently, in such well-known places as Heartbreak Ridge, Whitehorse Mountain and the Punch Bowl in Korea. The reverse slope defense is now an integral part of our Infantry training and we can expect to use it in future conflicts.

By definition a reverse slope defense is "a defense organized on any slope that descends away from the enemy." Actually it is organized on that part of a slope which is masked from enemy direct fire and observation by the topographical crest. This is the key to a good reverse slope position. Its success is based upon denying the crest of the hill to the enemy. If the enemy controls the crest, the defender loses all the advantages offered by the reverse slope. Here are five of those advantages:

1. In a reverse slope defense the crest prevents the enemy from observing our position. He is unable to make a detailed plan of attack since his observation is limited to air reconnaissance.

2. The effect of enemy artillery and mortar fire is greatly reduced because he cannot observe the fire. He must resort to area fire, whose effect is far less than that of accurate, directed fire.

3. Enemy direct fire weapons will be unable to hit our positions because of the intervening crest.

4. Surprise fire upon the enemy will be facilitated because troops on the forward edge of the battle position will be unable to fire until enemy troops cross the crest. At that point they will be within effective range of all our fires.

5. Troops on the reverse slope have freedom of movement because of limited enemy observation. During daylight they can improve positions and obstacles and clear fields of fire. This freedom of movement allows better command supervision and facilitates supply and evacuation. The commander can maneuver his counterattacking troops to a closer assault position, while the effect of enemy artillery and mortar fire is at a minimum.

Every position has its disadvantages and we must consider at least four in the defense of the reverse slope. The first and greatest, is the difficulty of maintaining observation essential for long range fire. Another is our inability to cover minefields and obstacles on the forward slope by direct fire from within the battle position. A third is having to defend ourselves against a downhill attack should the enemy gain possession of the crest. The fourth disadvantage is that a reverse slope defense may be more vulnerable to night attacks than a comparable forward slope position. In the latter every man along the forward edge of the battle position is a potential long-range observer, while on the reverse slope this is impossible because of the crest.

Why and when to employ a reverse slope defense are closely associated, and we'll discuss them at the same time. Under the following conditions a reverse slope defense might be preferred to that of a forward slope:

1. When the forward slope is untenable because of a lack of cover and concealment.

2. When the terrain affords better fields of fire on the reverse slope.

3. When we must avoid a dangerous salient or re-entrant in our MLR.

4. When the forward slope has been lost or has not been gained.

5. When possession of the crest is not necessary for the observation of our fire.

In organizing the defense of a reverse slope, the forward edge of the battle position should be so located that we obtain surprise fire on the enemy as he crosses the skyline. The most important consideration in placing the front line elements, therefore, is the location of

BATTALION IN REVERSE SLOPE DEFENSE (SCHEMATIC)

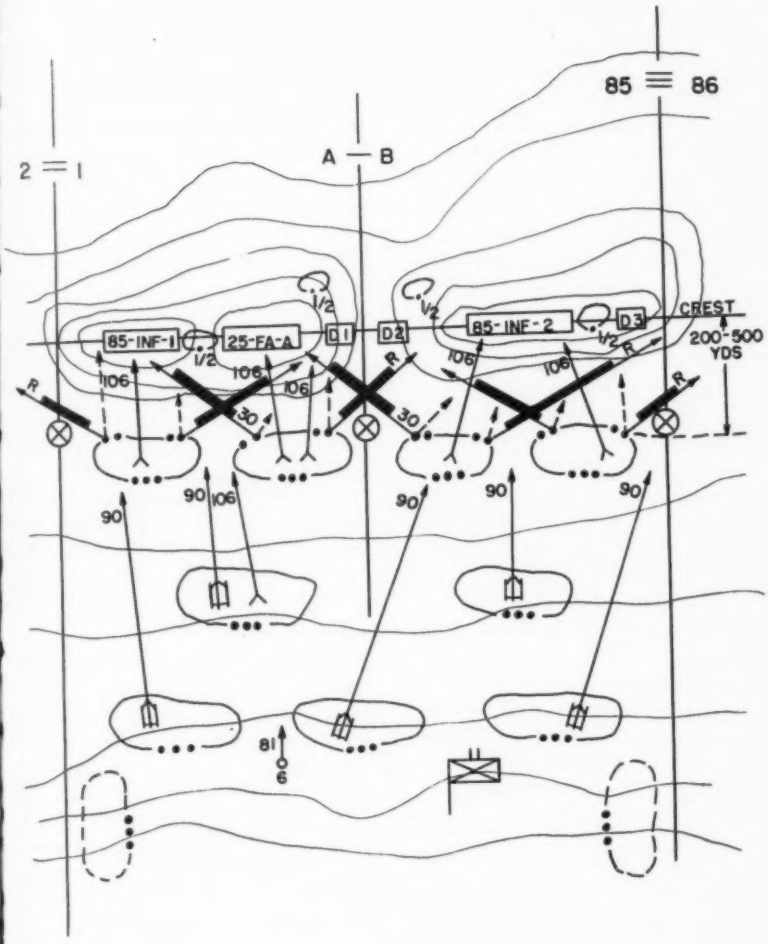


FIGURE 1

good fields of fire to the crest. We also should have good coverage of the area between the crest and the forward edge of the battle position. The type of cover and concealment and the location of natural obstacles are other factors which influence the location of the forward edge of the battle position. It should be within effective small arms range of the crest, but far enough from it to allow our men to place well-aimed fire upon the enemy before he reaches us. The best distance from the forward edge of the battle position to the crest is between 200 and 500 yards.

In considering security, remember that the vision of the troops along the forward edge of the battle position will extend only as far as the crest. In any defensive action it is important that we stop the enemy — or, at least, impede his progress—as far from our position as possible. If the situation permits, a combat outpost line may be established to the front. When the outpost is withdrawn, it is desirable to maintain fires on the enemy by weapons located in or near the battle position. The best place from which we can maintain observation for this fire is from the crest of the hill forward of the battle position. We therefore place observation and security groups in the best position to achieve this. These groups observe and direct the fire of our long-range weapons and furnish security to the battle position. They furnish warning of the enemy's approach while he is still distant and provide close-in security. Sufficient groups should be disposed along the entire front to enable us to place fire at any point and to prevent the enemy from surprising any part of the battle position.

The observation and security groups will need observers for our artillery and mortars, and other personnel to protect them and to provide local security to our front. The groups should be reinforced with machine guns, recoilless rifles and tanks if the terrain and enemy situation allow, to delay the enemy as much as possible. These groups must be sufficiently strengthened at night to prevent the enemy from seizing the crest.

The riflemen of the observation and security groups are normally furnished by the reserve platoons of the front line rifle companies, and their actions are usually controlled by the battalion commander. This authority, however, may be delegated to the front line company commander.

In discussing the employment of weapons in a reverse slope defense, let us consider each weapon separately. The machine guns are placed where they can obtain maximum surprise fire as the enemy passes the crest. Sectors of fire should provide maximum coverage between the main line of resistance (MLR) and the crest and, if the terrain permits, they should cover the forward slope of an adjacent hill. If this is not possible, they should be located where they can achieve the best grazing, flanking and interlocking fire. Some flanking fire may be sacrificed to obtain a better sector of fire on the crest.

The mission of the 106mm recoilless rifles is to destroy enemy armor forward of the MLR and to provide continuous close support to the rifle companies. Normally, all six rifles are employed in front line rifle company areas. They should be sighted to cover the likely avenues of enemy armor approach into the battle position. It is desirable for these weapons to remain under battalion control.

The tanks attached to the battalion provide antitank defense for the battle position, reinforce the fires of front line units, and support our counterattacks. The factors to consider in their employment are: enemy capabilities; limitations and capabilities of the tanks; the ter-

ain, including likely avenues of approach, fields of fire and cover and concealment; the frontage assigned to the unit. Tanks are employed laterally and in depth — laterally to reinforce the fires of the battle position and to stop enemy tanks before they overrun the front line positions; in depth to extend the depth of the antitank defense and to support a counterattack. Primary, alternate and supplementary firing positions should be prepared for each tank. The positions should be mutually supporting, while affording maximum cover and concealment. When the enemy possesses an armor threat and tank trafficability is good, tanks may be initially employed with the observation and security groups to provide antitank and long range fires to the front of the battle position. When ordered to withdraw, they move to their primary positions which, for reasons of security, are located near rifle platoon positions.

Mortar and artillery barrages are placed on the crest of the hill to prevent its occupation and use by the enemy; concentrations are planned forward of the crest as in a forward slope defense. The concentrations must cover all approaches and likely assembly areas. These fires may be called for by the observers, or delivered without observation.

Mines and obstacles are used to the maximum extent in the relatively restricted area between the crest and the battle position. Their purpose, of course, is to slow down the enemy Infantry and tanks so that our weapons in the battle positions will have easier targets. Minefields should be established on the forward slope, if possible, and covered by weapons of the observation and security groups.

This, then, is the organization of the defense when we use the reverse slope for a battle position (Figure 1). Each front line company normally employs two platoons forward with one or both platoons on the reverse slope. The reserve platoon is located where it can best protect the company's front and flanks, fir-

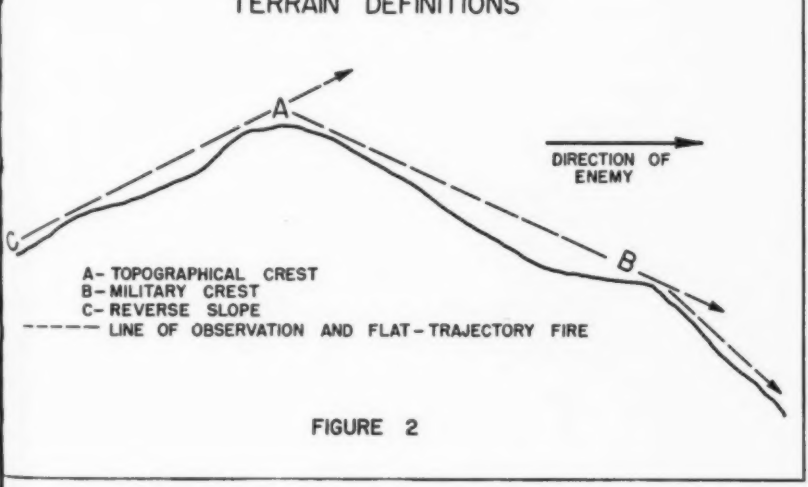


FIGURE 2

ing in the intervals between the front line platoons and blocking any penetration. If high ground is not available to the rear, the reserve platoon then occupies positions on the reverse slope. The reserve company occupies prepared positions in the rear of the battalion area, and participates in the battalion counterattack as the maneuvering force.

The conduct of the reverse slope defense closely parallels that of the forward slope position defense. The security echelon functions as in any other type of defense. Observation and security groups give early warning of the enemy's approach, and delay and disorganize him with long-range fires, withdrawing before becoming engaged in close combat. In this withdrawal, the heavy machine guns and the recoilless weapons precede the riflemen, light automatic weapons and tanks. They can then occupy their primary firing positions before the enemy reaches the crest. Prearranged concentrations are delivered on the forward slope to disrupt the enemy's attempt to mass for the assault, but direct fire weapons within the battle position withhold their fire until suitable targets appear. Barrages are delivered as the enemy achieves the crest, and indirect fire weapons not firing barrages continue to fire concentrations. The machine guns fire their sectors of fire except when final protective fires are called for. If the enemy makes a penetration, all available fires are placed within the penetrated area. If these fail to eject the enemy — if the hostile force is slowed or stopped — and if there is a reasonable chance of success, the counterattack is executed. The maneuvering force of the counterattack destroys the enemy in the penetrated area and continues the attack to reestablish the observation and security groups on the crest. All available tanks are attached to the maneuvering force to assure maximum effectiveness of the counterattack.

Maintaining a reverse slope defense position depends upon our retaining control of the crest, either by physically occupying it or by denying it to the enemy by fire. The area must be organized and the defense conducted on this premise. Then, by properly applying the fundamentals of defense, we can accomplish a successful reverse slope defense.

MAJ CHARLES A. JACKSON decided to write about reverse slope defense after receiving a number of requests from the field for information on this subject.

Maj Jackson, a member of the Regimental Committee, Tactical Department, TIS, received his commission in 1940 upon graduation from The Citadel. His combat experience in WW II included the North African and Italian campaigns. In Korea he was a battalion commander with the 40th Division.

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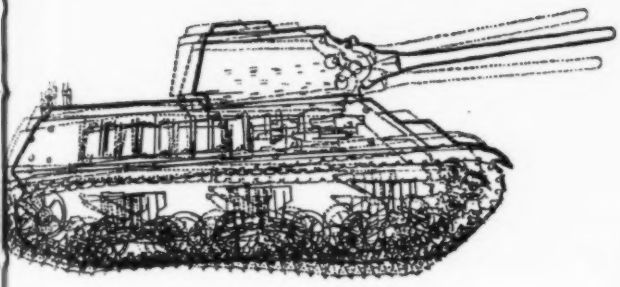
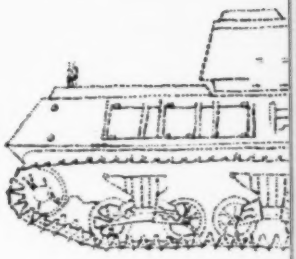
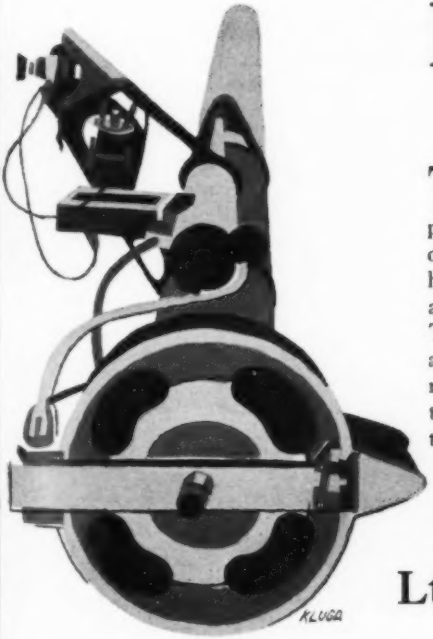




DUAL MISSION



The antitank family has grown, not only in number but in destructive power. The 106mm recoilless rifle,[1] an organic part of the Infantry battalion's heavy weapons company, has brought about some important changes in tactics. This new weapon has enabled us to adopt a different concept of tactical employment for the antitank platoon in the attack and has increased our already versatile means of supporting rifle companies.

Lt. William Broady

A new general support role . . .

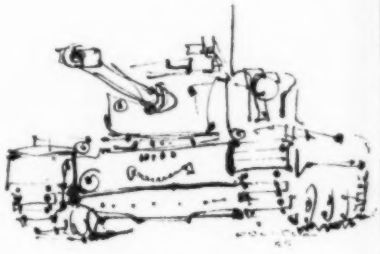
In comparing the old recoilless rifle platoon with the other platoons of the heavy weapons company, i.e., the machine gun and mortar platoons, we find that the standard methods of utilization were static and applied in virtually the same manner to all three platoons. The requirements for general support, direct support or attachment were the same and, with the exception of the characteristics of the weapons, what applied to one platoon, applied to the others. Why? Simply because the three platoons had identical missions: *close and continuous support for the attacking rifle companies.* Now, however, the heavy weapons company has a unit that does not follow the norm. It is the antitank platoon.

The antitank platoon still has the same mission—close and continuous support—and can accomplish this job as effectively as when it was equipped with the 75mm or 105mm recoilless rifle. However, close and continuous support of the attacking companies is now the secondary mission. The platoon's primary assignment is to destroy enemy armor or, more simply, to provide antitank protection for the Infantry battalion.

With these primary and secondary missions, the antitank platoon's potential has been considerably broadened. The platoon not only supports the rifle companies in the attack, but has become the Infantry battalion's major organic antitank unit. What, then, are the effects of this new weapon on our methods of utilization?

Previously, the requirements for general support called for the platoon to: (1) Support the major portion of the battalion by fire; (2) Mass the platoon's fire on the initial objectives of the attacking rifle companies; (3) Mass fires on the critical terrain within the battalion zone. This definition applied to all three platoons of the heavy weapons company. If any of the platoons were unable to meet these requirements, the platoon had to be used in either direct support or attachment. General support, however, is the preferred method of utilization because it offers centralized control, flexibility, ease of ammunition resupply and continuity of fire during displacement.

The antitank platoon is no longer confined strictly to these general support requirements, for they pertain to the platoon's secondary mission of close and continuous support for the rifle company. Whenever the enemy has armor capabilities, the reorganized platoon is used in its primary mission of providing antitank protection for the Infantry battalion. Under this mission, the platoon satisfies the requirements for general support when the antitank sections are positioned to cover the tank approaches into the battalion zone. Because it is extremely mobile, the antitank platoon can be used, in a majority of situations, for general support. The sections are capable of moving



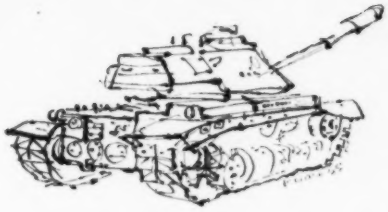
[1]For complete description of 106mm recoilless rifle see "Power Plus," July 1955 *Infantry School Quarterly*

for the antitank platoon

rapidly to cover any approach within the battalion zone threatened by enemy armor. The advantage of mobility also applies in the platoon's mission of close and continuous support, since it is possible for the antitank sections to move laterally within the battalion zone to various firing positions. This permits full coverage of the objective area and also of intermittent critical terrain.

We have shown the antitank platoon in general support. What is to be considered when the platoon is in direct support? Since direct support is the utilization of the antitank platoon to support one rifle unit of the battalion, we find that—when the platoon is used in direct support—it will normally function in its secondary mission of close and continuous support for that rifle unit. The rare exception to this is when there are obstacles (preventing lateral armor movement) in the battalion zone. In a case such as this, each antitank section could be placed in direct support of the unit or units affected by armor.

Control at a central point is the principal advantage which makes general support the preferred method of utilization. However, direct support also provides a fair degree of centralized control since control of the supporting antitank unit remains within the heavy weapons company. Therefore, the selection of *attachment* for the antitank platoon is based on the inability to maintain this centralized control. An antitank unit



may be attached to a rifle company during airborne operations, an attack in built-up areas, movement to contact and in other tactical situations. Under these conditions, when control at battalion or heavy weapons company level is impossible, the antitank unit is attached to the rifle company and is controlled by the rifle company commander. In attachment then, there is little change in utilization, except that the antitank platoon can provide additional antitank protection for the supported rifle company.

The new antitank platoon, with its dual missions, is now in a better position to meet the requirements for general support. This means that the new addition to the heavy weapons company's destructive power is—more than ever—a greater asset to the Infantry battalion.

AFTER receiving his commission from OCS at Fort Benning in 1951, LT WILLIAM BROADY was assigned as a platoon leader with the 40th Division. An instructor in platoon tactics at TIS, he decided to write about the new concept of the AT platoon when he saw that many students had trouble forgetting the general support role formerly given to this unit.

"In a dense thicket every man is his own General, and subordination to orders where combined movements are impossible of execution, becomes a vice rather than a virtue."

(Sergeant Lamb of the 9th, 1775)

P. 201, *A History of the Regiments and Uniforms of the British Army.*

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AIR MOBILITY . . . STAFF PLANNING

LT. COL. HUBERT S. CUNNINGHAM

The army realizes that in any future war we will need a high degree of air mobility, both strategic and tactical, and that Infantry units—as well as airborne Infantry—must be prepared to plan and execute air movements rapidly and efficiently, using any of the various types of aircraft which may be made available.

Before the advent of the transport helicopter, the nonparachute-qualified Infantryman had little reason to concern himself with the assault phase of an airborne operation. If his unit participated in an airborne operation, it usually was flown from one secured airfield to another. Since the unit was unlikely to become engaged immediately upon landing, the movement planner was normally concerned only with loading his unit aboard the aircraft, making maximum use of available space and assembling the unit as it arrived by plane load at the arrival airfield.

Final instructions for the commitment of the unit were issued at the arrival airfield.

Now, the situation has changed. Participation in the assault phase of an airborne operation has become an important consideration for all Infantry commanders. In addition, they must be familiar with the characteristics of a variety of transport aircraft as well as the air transportability limitations of certain equipment. They must train their units to execute air movements rapidly and efficiently since speed is essential to make the most of our air mobility potential.

How can the Infantry commander gain this essential knowledge? Department of the Army Technical Manual 57–210 contains information pertaining to the aircraft and equipment which he must know, but a thorough knowledge of these technical factors is not enough. To move by air, a unit must be capable of preparing detailed movement plans rapidly and efficiently, for it is upon the successful move itself that the ultimate execution of the mission is based. This, however, raises a major question: "Is the planning for an airborne operation overly complicated?"

When our army was making the transition from horses to vehicles, there were undoubtedly a few diehards who considered the planning of a motor march to be too complicated. We learned, however, that we needed a few techniques to insure the successful completion of a motor march. As a result, we now use march graphs, march tables, strip maps, truck manifests and vehicle allocation tables. Such terms as speed, rate of march, open and closed column, initial point, release point, serials, march units, time length, road space, time interval and many others are common knowledge throughout the army. These terms were probably not accepted without reluctance, however, for they "tended to complicate planning."

It was as necessary to develop doctrine for the conduct of motor marches as it has been necessary to develop new techniques and terminology for the planning involved in an air movement. Such aids as the planning worksheet, basic planning guide, air movement and loading tables and flight manifests have been developed. New terminology includes air control points, landing, loading and drop zones, loading and marshalling areas, airhead, reconnaissance and security echelon, flight serial and flight unit.

Planning for an airborne operation is characterized by backward planning. The sequence consists of a ground tactical plan, landing plan, air movement plan and loading or marshalling plan. There is nothing really different about this planning technique, but names have been given to certain plans which would have to be developed in a normal attack. In planning a ground attack, the commander first considers his mission. He then determines what objectives he must seize and the size of the force needed to accomplish the mission (ground tactical plan). Next, he determines how he wants his forces disposed by location and formation near their objectives and the priority of their arrival at those locations (landing and assembly plan). Following this, he must decide how to move them there from their current location (movement plan), provide them with the supplies and equipment necessary to accomplish their mission, issue necessary orders and provide the means necessary to execute the move (marshalling or loading plan).

Although there is nothing really different in the planning sequence for an airborne operation, it is completed in

more detail than for a normal ground operation. To illustrate this, let us assume that an Infantry unit has just received orders to move by helicopter from its present reserve position to an objective area 12 miles behind enemy lines. It is to seize and hold the objective until it links up with an advancing ground unit. The unit commander must prepare a plan for the assault to seize the objective and a plan for the defense. He must prepare a landing plan which will place his units in the most advantageous positions and in the sequence best suited to accomplish their missions. Next, he must prepare a movement plan which will insure that his unit executes the move in the manner best suited to the landing plan. Finally, he must make plans for assembling his unit within the departure area. Then he must coordinate with the supporting transport aviation unit, brief his personnel for the operation and load the aircraft. He also coordinates with all supporting units and agencies prior to departure.

Since the execution of the assault phase must be decentralized to subordinate units, instructions to those units must be spelled out in detail. Personnel participating in the operation will not be familiar with the weather, terrain and enemy situation within the objective area and must be thoroughly briefed. Commitment in the assault will be rapid as compared to the more gradual commitment in a ground attack. Knowing that these plans have to be developed and that, after landing, the force will be completely dependent upon air lines of communication—it is not difficult to see the need for detailed planning and briefing in airborne operations.

The commander faced with an air movement must consider what personnel, supplies and equipment he must move before he can decide how many aircraft he will need. Also, there is certain information regarding the major items of equipment to be moved which he must have (weight, dimensions, etc.). Forms have been developed which help to consolidate the information necessary for a pending airborne operation. In joint air movements, a basic planning guide is used and in army air movements,[1] a form called a planning worksheet is used. Both of these forms serve the same purpose—they assist the movement planner

[1] A joint air movement is carried out by the air force and the army. An army air movement is an airborne operation carried out solely by the army.

in determining how many aircraft are required by reflecting basic but pertinent information on what is to be moved. You can do without the forms by putting the information down on a piece of paper and coming up with the same answers, but you would be wasting valuable time. These forms are not complicated and are a definite aid in movement planning.[2]

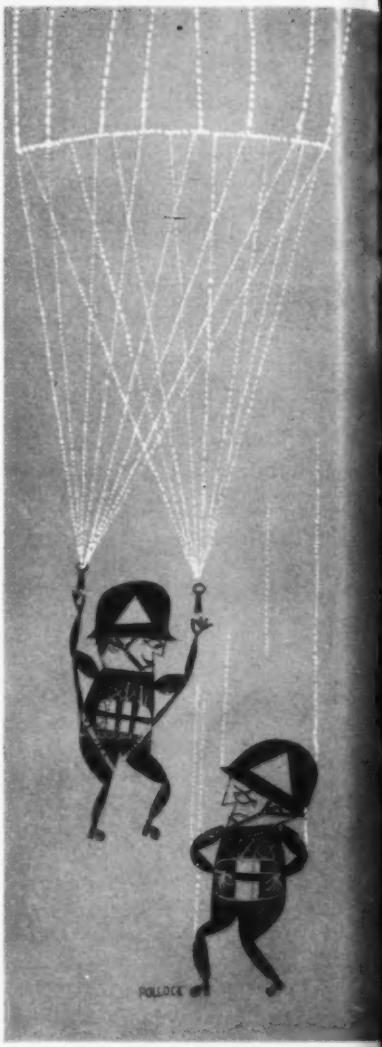
To facilitate dissemination of detailed instructions and to avoid placing them in the body of an operation order, an *air movement table* is used which conveys these details in logical sequence to subordinate units.

The *battalion* uses an *air loading table* which fills the same purpose as the air movement table at regiment, and also indicates what is to be loaded in each aircraft for the move. Based on the information contained in the air loading table, the company can develop its movement and loading instructions. At *company level,* this information is reflected on a flight manifest form.

The types of airborne missions in which Infantry units may be employed are limited only by our imagination. The need to move troops rapidly in order to concentrate or disperse them as the situation demands requires that all Infantrymen accept the airborne concept and prepare to make maximum use of its potential.

Planning air movements (airborne operations) must become as familiar to us as planning for motor marches. The successful execution of the mission in an objective area is directly dependent upon the type of planning which will insure the arrival of the force in the objective area at the right time, in the best formation, with the necessary equipment and supplies, and in condition to accomplish that mission.

Cool, calm and unperturbed. Why?



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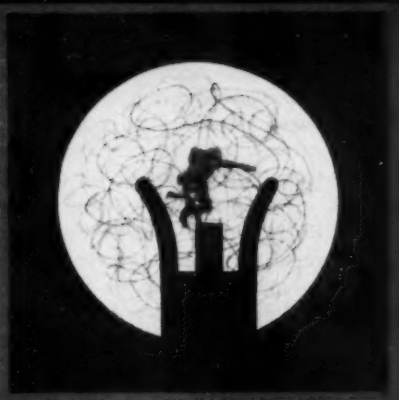
[2]Samples of the forms discussed here are contained in FM 57-30. A new text, FM 57-35, is currently being prepared.

Trainfire

approach to rifle marksmanship



Expert rifle shooting has been considered to be an American heritage since the very beginning of our nation. The startling effectiveness of American small arms in the Revolutionary War taught the British Army to respect and fear our sharpshooters. Had United States Army Infantrymen retained the skill of their forefathers, combat effectiveness in World War II and in the Korean conflict might have been increased considerably.

Experience has shown, however, that the rifle — the basic weapon of the US Army — has been used in recent years with lessening effectiveness in combat. As late as the Korean conflict, many of our Infantrymen lacked sufficient skill in the delivery of accurate aimed rifle fire. This fact prompted the army to analyze the effectiveness of its marksmanship training program. Early in 1954, a research study was begun to uncover means, not necessarily within conventional marksmanship methods, for improving rifle marksmanship training. The project was called TRAINFIRE.

This study, conducted by the Headquarters, Continental Army Command Human Research Unit Number 3, Fort

Benning, in cooperation with The Infantry School, has developed a new concept designed to improve the army's entire rifle markmanship training program.

The first phase of this concept endeavors to reproduce in training many of the marksmanship problems encountered by individual riflemen in combat. It is designed to develop, in a minimum time and with minimum expense, riflemen who can detect and engage combat targets more effectively than firers trained under present marksmanship programs.

The new concept is undergoing tests by the 8th Infantry Division at Fort Carson, Colo., and the 101st Airborne Division at Fort Jackson, S. C., to determine whether or not the TRAINFIRE basic course of rifle marksmanship instruction is superior to the present known-distance course used in basic training. If adopted by the army in its present form, the new concept would reduce marksmanship training time during the first four weeks of basic training from the present 86 hours to 74 hours.

The TRAINFIRE program provides combat realism in the initial phase of rifle instruction. This is accomplished by firing at bull's-eye targets for zeroing purposes only. All other firing is conducted at 1000 inches and against low outline targets at unknown ranges. TRAINFIRE makes extensive use of camouflaged targets to obtain maximum battlefield realism. The targets are pop-up silhouettes which simulate the enemy and are exposed at irregular intervals, briefly and at unknown distances not exceeding 350 yards. Both stationary and moving targets are used. The targets are electrically powered, remote controlled and fall automatically when hit. TRAINFIRE also includes nonfiring target-identification training and a target-identification test.

The current course in individual marksmanship training includes five general areas of instruction: sighting and aiming, positions, trigger squeeze, sustained fire, and sight-setting exercises. This program has been developed over the years largely on the basis of expert authoritative opinion and evolution in training methods.

The TRAINFIRE marksmanship course is based on certain fundamentals, substantiated by combat data and tested and evaluated by modern psychological methods. These fundamentals are:

1. Enemy personnel targets are rarely visible except in a close assault.

2. Most combat targets consist of a number of men or objects irregularly lined and using cover such as ground folds, hedges, ditches and borders of woods.

3. Such targets are detected by smoke, flash, dust, noise or movement and are usually seen only fleetingly.

4. These targets can be engaged by using a nearby object as a reference and aiming point.

5. The range of battle targets will rarely exceed 300 yards.

6. The nature of the target, the terrain on which it appears, and the digging-in requirements of the defensive often preclude the use of the prone position. These conditions do, however, favor supported positions such as the foxhole standing or kneeling positions.

7. Selecting an accurate aiming point in elevation is difficult because of the low outline and obscurity of battlefield targets.

8. The problem of proper elevation is complicated by present zeroing instructions — that is, using a six-o'clock hold at the bottom of the bull's-eye to achieve a center hit. This procedure introduces an error which is half the diameter of the bull's-eye. The error introduced is increased because present training policies require the shooter to aim at the

center of mass of a field target rather than at its lowest visible edge. Since only part of the actual mass, or bulk, of the target is usually seen, the center of seen mass will normally be above the actual center.

9. The conditions of rifle fire in combat rarely require or permit the use of windage adjustment.

When research on TRAINFIRE was begun, one underlying thought was retained by the research team: Infantry training must thoroughly prepare soldiers for battle by teaching them as many requirements and skills of combat as possible. Realism must be the keynote of all Infantry training. An important principle of learning is involved here: transfer of training. In simplest terms, a skill is learned in one situation and used in another. For maximum transfer, it has been found that certain crucial aspects of training must be realistic; that is, resemble the combat situation sufficiently to involve use of the same basic skills.

It is obviously impossible for actual battle situations to be duplicated in training. But in TRAINFIRE an attempt is made to identify and simulate those features of combat which are critical to the development of combat rifle marksmanship proficiency.

In contrast, the present known-distance marksmanship instruction sacrifices realism for strict measurement of proficiency. In known-distance marksmanship no attempt is made at transfer training, since the bull's-eye targets will

Army Chief of Staff General Maxwell D. Taylor (second from right) and Lt Gen Thomas F. Hickey, Third Army Commander (right), observe a trainee firing from a foxhole in the supported standing position as Lt Col James H. Ritts explains the range to the Chief of Staff.

TRAINFIRE PROGRAM

Subject	Hours of Instruction
Orientation and Operation of M1 Rifle	2
Mechanical Training	4
Preparatory Marksmanship Training (1000-inch range)	26
Range Firing, Known-Distance (Zeroing)	4
Field Firing	28
Care and Cleaning of Rifle	2
Range Firing, 1000-inch Area Firing (M1 1000-inch Silhouette Target)	4
Field Firing, Area Fire	4
	74 hours

never be encountered in actual combat. The TRAINFIRE concept does not ignore measurement of proficiency but it is designed for maximum, rapid transfer to combat conditions through realistic training.

The TRAINFIRE program represents a complete redesign of the basic marksmanship course to be used in the first four weeks of basic training (Army Training Program 21-114).

Mechanical training in TRAINFIRE varies from the conventional marksmanship instruction in sequence only. All of the preparatory marksmanship training and 1000-inch firing is presented on the 1000-inch range. The instruction, which consists of short lectures, brief periods of practical work and live firing, is based upon the coach and pupil method.

As soon as the soldier receives an orientation on how the M1 rifle operates, he is required to fire three rounds at the 1000-inch target. This firing occurs prior to mechanical training. The initial shot group score is kept for comparison with shot groups obtained from later 1000-inch firing. A half bull's-eye is used as the target during this phase as well as for zeroing on the known-distance range. This target teaches the firer to zero so that the round will strike at the point of aim.

Sighting and aiming is taught as the most important element in rifle training. The trainee learns to focus his eye and mind on the front sight when he fires, thus insuring correct alinement. By practicing the sighting and aiming exercise prescribed by paragraph 82, FM 23-5, during his 1000-inch firing and by firing three-round shot groups at 1000-inch targets, the rifleman strives continually to obtain the correct sight picture.

Shooting is taught as an integrated act. This consists of obtaining the correct sight picture and holding the rifle steady while pressing the trigger to the rear. The factors which contribute to holding the rifle steady during firing are presented as the "steady-hold" factors of marksmanship and apply to any position from which the man is shooting. Trigger control is one of these factors. The rifleman is taught to obtain the correct sight picture and then press the trigger straight to the rear without disturbing his aim.

The standard positions included in FM 23-5 are stressed as the ideal unsupported firing positions. However, in the TRAINFIRE course the trainee is not required to use a position which causes strain and discomfort. The good position depends upon bone support and muscular relaxation. This contributes to the steadiness of the piece so that it may

be fired without disturbing the firer's aim.

In combat, a great amount of rifle fire is delivered from foxholes, over walls and from behind trees or piles of rubble. Consequently, about 64 per cent of the firing in the TRAINFIRE course is from supported positions. The course teaches the soldier to rest his hand, wrist or arm on the support and to place his rifle in his supported palm.

Target detection is taught concurrently with field firing. The principles taught are integrated into the field-firing training. Detection training is conducted on a range which provides the trainee an opportunity to practice locating hidden and partially hidden human targets who use realistic camouflage in their natural surroundings. These targets are made more realistic by including smoke, flash, dust, noise or movement. As a part of record practice, a target-detection test is given concurrently with record firing. This test includes estimating the range as well as locating the target.

A stationary target device (Punchy Pete) is used on the field-target range. It is an electrically powered mechanism that presents a pop-up silhouette to the rifleman. This target simulates a human figure that suddenly appears, remains exposed in the same position and then disappears. Its working mechanism is placed in a hole or trench so that only the silhouette target is visible to the observer.

Firer braces his rifle against the stump at his firing point to provide steadiness of aim and protection.

When the device is ready for operation, the silhouette lies on its side below ground level where it is hidden from view. It is suddenly rotated into a vertical position when the control operator closes a remote control switch. The target remains vertical until released, either by the operator or by the impact of the bullet. This causes the target to disappear to its original horizontal position. The main advantage of this device is the increased realism it provides in field problems. It presents a "killable" target to the soldier since it automatically falls when hit by a bullet; it also provides an immediate measurement of accuracy.

Before field firing, the soldier zeros his rifle on a modified "A" target (half bull's-eye) at 200 yards.

The battle sight setting is used to engage the pop-up targets appearing at ranges from zero to 350 yards. If the target appears at a range of 300 yards or less, the trainee is taught to aim at the lowest edge of visible mass. For targets over 300 yards in range he is instructed to aim at the center of visible mass.

The TRAINFIRE program includes a record course which is conducted on a target detection range. This course tests the rifleman's ability to detect and hit simulated battlefield targets. It provides combat realism but still retains the elements of safety and provides a reliable method of scoring. The course achieves combat realism by using camouflage to represent enemy cover and concealment; leaving natural cover and terrain undisturbed when placing targets; using olive drab, pop-up silhouette targets; exposing targets briefly, irregularly and at unknown ranges; requiring the soldier to

Trainee rests his elbow and the back of his left hand, which supports his rifle, on the sandbags around the foxhole while he is firing. The use of the sling is eliminated.

fire from a foxhole or other fixed supported position and from an unsupported position of his choice, and requiring the soldier to wear his combat uniform and equipment while firing.

Comparison — Conventional Versus Experimental Training

In a comparison of the conventional and the experimental marksmanship training programs, CONARC Human Research Unit Number 3 arrived at a number of premises as a basis for implementing the TRAINFIRE training. The following is a partial account of these premises:

"An emphasis on safety seems to be characteristic of conventional marksmanship training. Excessive safety concern results in a loss of realism which detracts from training in requisite combat skills and risks developing in the trainee a fearful attitude regarding his weapon. The end result is reduction in the trainee's self-confidence and thus the possibility of less efficient combat performance.

"In the conventional course there is a minimum of training in . . . the ability to detect, mark, and estimate the ranges of targets. The present transition course, designed to bridge the gap between known-distance and field firing, does not stress target detection.

"There would seem to be lack of realism in the teaching of the various firing positions. . . . There is little training in the technique of assuming various positions naturally and quickly for emergency situations, such as ambush. . . . There is an emphasis on sustained delivery of a number of rounds at a clearly defined target, rather than on the combat requirement of rapid delivery of a few rounds each at one or more obscure targets.

"Even though the majority of combat firing positions are supported, . . . there is lack of emphasis on such positions, particularly the foxhole position. The majority of the conventional practice firing is done from nonsupported positions.

"Another characteristic of the conventional program is the use of unrealistic targets. The silhouette targets on the transition range are clearly defined. On the quick-fire course there is lack of realistic effect in the design of the pop-up and moving targets. Also, the inclusion of specially marked 'friendly' targets on this course introduces a hesitancy factor of questionable value. Moreover, there is no training on fast-moving targets which would provide practice in estimating lead necessary to hit such targets."

In the experimental TRAINFIRE marksmanship training program, the above defects are overcome in instruction. An attempt is made to adhere to a course which combines safety, realism and reliable scoring in such a way as not to jeopardize the validity of training nor its reliable assessment. It was found by HRU Number 3 that men trained by the TRAINFIRE method were significantly more proficient than the conventionally trained individuals in the ability to detect and mark targets, to estimate ranges, and to hit targets, once detected. The HRU findings indicate further that the experimental training course better prepares the soldier for effective use of his rifle in combat than does the conventional course. The troop tests at Fort Jackson and Fort Carson should either validate or invalidate these findings.

The experimental marksmanship training program is but one phase of the TRAINFIRE project designed for improvement of the entire rifle marksmanship training program. There are three other phases to this project. The second phase, TRAINFIRE II, is still in the experimental stage. It is designed to investigate and measure the problems and techniques in the combat practice firing of the rifle squad. This study will de-

velop improved training methods for combat practice firing.

The mission of TRAINFIRE III and IV is to improve sniper effectiveness in three areas: (1) selection of the most suitable sniper equipment; (2) improvement of sniper techniques; and (3) improvement of sniper training.

The specific objective of TRAINFIRE III is to develop the training and facilities required to train efficiently the rifle squad sniper equipped with currently issued weapons and equipment and within the 37 hours prescribed by the training program. This training will include night firing with the sniperscope.

The purpose of TRAINFIRE IV is to develop the training, facilities and equipment required to produce highly skilled snipers capable of successfully engaging difficult targets at extreme ranges. Training time will be limited to the minimum essential but adequate for the contemplated mission.

The over-all objective of TRAINFIRE is to restore to the United States Army that pre-eminent position in rifle shooting which it so proudly maintained in the early years of the Republic. This objective cannot be obtained by researchers alone. With the excellent and close cooperation of The Infantry School, however, and from the results of field tests, concrete improvement can be expected in methods of teaching rifle marksmanship.

This article was prepared jointly by the Infantry Section and the Public Information Division, Headquarters Continental Army Command, Fort Monroe, Va. —*Editor*

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a loaf
of bread
a jug
of wine

. . . and my ISQ. With apologies to Omar Khayam, we'd like to suggest that The Infantry School Quarterly will offer you many pleasant moments of reading. Stock up now, write: Chief, Circulation Section, *Infantry School Quarterly,* Book Department, The Infantry School, Ft. Benning, Ga.

QUIZ

Answer the following questions to determine whether you are a bolo, recruit, marksman, sharpshooter or expert. Each question is worth 10 points.

1. What are the special staff responsibilities of the Counterfire Platoon Leader of the Infantry regiment?

2. How many missions should be assigned to a patrol?

3. In the prone position, the angle formed by a line drawn in continuation of the rifle bore and the firer's body should be approximately (select *one*):
   a. 30 degrees or less.
   b. 45 degrees.
   c. 50 degrees.

4. Name a suitable fixed-wing aircraft, organic to the Infantry division, which can be used for limited aerial resupply.

5. Which military explosive is the best cratering charge?
   a. TNT.
   b. Nitrostarch.
   c. Tetrytol.
   d. Ammonium nitrate.

6. When the long axis of the beaten zone coincides with the long axis of the target, machine gun fire is classified as (select *one*):
   a. Enfilade.
   b. Grazing.
   c. Plunging.
   d. Frontal.

7. Who provides the aircraft parking diagram for a joint air-transported move?

8. Name three methods of utilization of the platoons of the heavy weapons company, the Infantry battalion.

9. To deny passage to an M-48 tank, a vertical wall (of sufficient strength) must be constructed (select *one*):
   a. 36 inches high.
   b. More than 36 inches high.
   c. More than 40 inches high.

10. If you are receiving a message by radio and your set is jammed by the enemy, you should first (select *one*):
    a. Authenticate the transmission.
    b. Use a dummy antenna.
    c. Site station and antenna to evade enemy jamming.
    d. Readjust your set to minimize the effect of jamming.

For answers see page 87.

The following information provides a means of keeping up-to-date on matters of professional interest.

NEW

Mobile Defense Revision. An important change has been made in the mobile defense concept. This change concerns security forces and the currently approved concept reads as follows:

"Security forces may include aviation and a mobile covering force furnished by corps or higher echelon. A mobile covering force may perform the mission of a general outpost. When the Infantry division is required to establish a general outpost, its capability for accomplishing all aspects of a mobile defense is compromised. In the absence of a general outpost, the strong points of the forward defensive area, in addition to their other missions, will perform the mission of a general outpost for the remainder of the division. Troops are not moved forward to accomplish the general outpost mission. In place of a combat outpost, the strong points establish detached observation posts."

•

Mobile Photodosimetry Laboratory. A Signal Corps mobile laboratory for photodosimetry, first of its kind to function in the field, developed and analyzed all dosimeter badges worn by troops and observers during the army's atomic maneuver, Exercise Desert Rock VI. The dosimeter badge is a sensitive radiation indicator which tells the wearer the amount of radiation to which he has been exposed.

After the Desert Rock tests, all badges were developed at the dosimeter laboratory and the results submitted to medics who treated overexposed individuals.

•

Lightweight Sound-powered Telephone. A new lightweight sound-powered field telephone, the TA-1 ( )/PT, has been standardized. It is 2½ inches wide, 3 inches deep, 9 inches long and weighs 2½ lbs. The army's previous set, the TP-3, weighs 10½ pounds, and measures 8¼ inches by 4½ inches by 10 inches.

The TA–1 has operated successfully, under average conditions, over a distance of more than 20 miles. Talking range of the TP-3 under the same conditions is about five miles.

The new telephone will replace the TP–3 and TP–3A and will be substituted for the EE–8 and TA–43 for many jobs. The TA–1 is a complete talking and signaling device in handset form. It uses no batteries and has blast- and immersion-proof features which make it suitable for use in combat and cold weather.

New Quartermaster Items. The army uniform board has recommended approval of a new, lightweight taupe raincoat to be worn in garrison by officers and enlisted men. The raincoat is belted, made of 1.8-ounce nylon. It is completely waterproof, does not mildew or become sticky. The poncho will still be worn in the field.

Two military pressure cookers have been designed to heat rations for 5 or 10 men respectively. Features are collapsible handles, new type of air vent, overpressure plug and nonrattling construction.

A thermo-canteen, although still in the prototype stage, promises to provide 50-degree drinking water in the Arctic for 6 hours at minus 40° Fahrenheit. It is a stainless steel bottle, similar to the conventional vacuum bottle, with an evacuated space between the inner and outer walls.

•

Air Weather Service. The Air Force's Air Weather Service has a weather team available on request. The team travels to army schools and gives an orientation program on the use, origin and organization of the USAF Air Weather Service supporting the army.

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UNDER STUDY

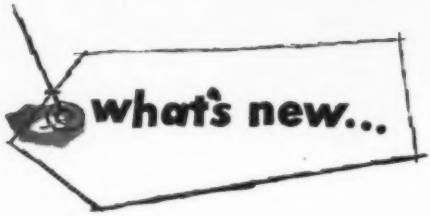
New Pay System. Finance officials at Fort Dix, N. J., have been studying ways to improve the army's pay system. Two new forms are under consideration: the Military Pay Voucher and the Request for Pay Action. Tests were based on the records of the 364th Regiment, 69th Infantry Division.

The new voucher shows each man how his pay has been figured. It indicates deductions taken from his pay and any amount remaining in his account. The use of the voucher could eliminate a basic complaint against the present system, i.e., individual lack of information about pay status.

The Request for Pay Action gives each man a choice of payment. He may choose less than the amount due him and credit the remainder to his account. He may request partial or advance pay, or payment by check if necessary. The request form also makes provision for soldier deposit withdrawals.

Under the new system, unit commanders would approve or disapprove requests for emergency withdrawals or for payment of less than a prescribed amount. The proposed changes would reduce the number of finance personnel and the amount of equipment now being used.

After officials evaluate this initial experiment, they will test the new system on a large scale for six months.



TIPS

Specialized Fields for Officers. The army is looking for officers to serve in its attache system and as intelligence and foreign-area specialists.

Army attaches and their assistants, who serve as members of the diplomatic staffs of US embassies and legations, are selected under the provisions of SR 600-147-1. They are given intensive training in the language and customs of the country for which they are selected.

Qualified personnel are encouraged to apply for such duty. The most recent vacancy circular covering this field was DA Circular 96, dated 19 August 1954.

Duty assignments for intelligence specialists include strategic intelligence, army security agency, counterintelligence corps and specialized intelligence units. SR 605-150–30 governs the intelligence specialization program.

The training of foreign-area specialists usually is conducted at the postgraduate level at the army language school, civilian universities and overseas schools in the areas being studied. Such training may last as long as four years. Officers interested in the program are advised to refer to SR 350–380–1.

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Specialists No Longer Outranked. According to a new G1 ruling, army specialists are no longer outranked by enlisted men of other services in equal or lower pay grades. This change does not affect the relative standing of enlisted personnel within the army. Noncommissioned officers will continue to outrank specialists.

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Airline Cuts Overseas Rate. Fares for servicemen flying home on leave from Europe have been cut by 40 per cent. A round-trip ticket for military personnel travelling between Frankfort, Germany, and New York now costs $361 on Pan American World Airways—a healthy reduction from the previous $597. TWA expects to make a similar cut in the near future.

•

Inspection of OEI's. DA has announced that officers' over-all efficiency indexes for 1955 are available for inspection at the Pentagon. The efficiency index is computed each year and is based on efficiency reports of the past five years. It reflects an officer's relative standing in regard to all other army officers.

An officer may obtain his efficiency index by visiting his career management branch or by giving another officer written authorization to obtain his efficiency index and to review his records. Career management branches are not authorized to release OEI's in response to mail or telephone requests.

DEVELOPED

Protective Material. A new building material, diffusion board, has been developed to filter out gases, germ-carrying particles and radioactive dust from nuclear-weapon fallout.

Diffusion board resembles ordinary wood-pulp fiberboard. Impregnated with special chemicals, it acts much like an ordinary gas mask in filtering out harmful substances but lets oxygen breathe in from the outside and permits waste carbon dioxide to be expelled from the inside. The porous diffusion board gives no protection against death-dealing gamma rays—thick lead or concrete shields still must be used to cut down direct radiation.

However, lining the walls and covering the apertures of a command post with the board would keep radioactive dust, poisonous chemical gases and biological-warfare agents away from personnel.

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FIELD MANUALS

A draft manuscript of FM 57-35, "Army Transport Aviation, Combat Operations," was completed recently at The Infantry School. Comments have been received from the field and it is expected that the manual will soon be published in final form. The manual provides interim guidance for commanders, staff officers and other interested personnel who must plan and execute tactical operations employing army transport aircraft (fixed-wing and helicopters) in support of ground units.

The manual provides basic information concerning the administrative and tactical planning and conduct of operations employing army transport aircraft from regimental combat team down to and including small reconnaissance patrols. It deals primarily with the ground aspects of these operations. The manual also describes the detailed planning and conduct of the airhead-type vertical envelopment by a regimental combat team.

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Revised. FM 23-55 and FM 23-65 have been approved by CONARC and will be distributed shortly.

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A new field manual, FM 23-(), "76mm Gun, M48," describes the 76mm gun used in support companies of airborne regiments and in airborne division antitank platoons. It is the first official publication to discuss crew drill and technique of fire for this weapon. The manual is being printed and should be distributed soon.

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TRAINING FILMS

The Signal Corps Pictorial Center has released a new Class E training film (MF7-8318) on the use of the machine gun clinometer M1917. The film runs seven minutes, shows how to lay a gun to a target elevation when the target cannot be seen.

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A new training film on methods of military instruction is being prepared at Fort Benning. It will replace the present film on the same subject which is now obsolete.

Capt. Robert L. Smith

TANKS in NIGHT COMBAT

Nicholas Corotneff, writing in *The Cavalry Journal* in 1943, said, "The time when tanks operated only between daybreak and sundown is definitely past." The late General George S. Patton went further. He wrote, "Soldiers must be taught to move and fight at night. This is becoming more and more imperative, and it does not mean to make an approach march at night. It means to conduct lethal operations at night."

These armor exponents were not suggesting that our army adopt a new concept in warfare. Night attacks have been used by commanders for centuries. The British were successful in this type of operation at Quebec in 1759, when General Wolfe led his men up to the Plains of Abraham during the hours of darkness and defeated General Montcalm's French army. The American army i

and has long been aware of the value of the night attack. Its effectiveness was proved many times during World War II. The Canadians, in an effort to break through the strong German defenses south of Caen, in August 1944, launched a division-sized attack employing tanks and Infantry at night. This offensive was highly successful, and was instrumental in closing the Falaise pocket. In the battle of Berlin, the Russians executed a maneuver in which, after twenty minutes of intense artillery preparation, Soviet tanks and Infantry advanced on a wide front over ground illuminated by powerful searchlights. By daybreak, forward elements had advanced from two to three kilometers. Despite these examples of the successful employment of armor during the hours of darkness, the daylight attack so overshadowed the night maneuver that, until Korea, it remained strange and foreign to the American army.

Night operations in Korea and the probability that in any future war they will equal or exceed daylight operations, indicate the necessity for emphasizing this type of training.

The present international situation holds the possibility that the United States may be pitted against an enemy so powerful in its military might that we should undoubtedly be forced to operate extensively under the cover of darkness. The threat of enemy air superiority and the possible employment of atomic weapons could make the use of these tactics a necessity. In addition, we must consider the ground combat capability and the excellent weapons of a potential enemy. He is well versed in night fighting, knows its advantages and can be expected to use this type of attack whenever he has the opporunity.

Although the emphasis on night training and operations has been greatly increased, the doctrine and the field manuals upon which such training is based are not, in all cases, either clear or complete. This is particularly true concerning that phase of the attack in which tanks and Infantry are used at night. The reasons for this lack of a clear and complete doctrine may become apparent with a discussion of the obstacles which confront the military in establishing the doctrine. One of these is the fact that Armor is a relatively new combat branch, and many changes in its basic tactical principles have been necessary during its integration with the Infantry and artillery as an effective member of the combat team. It must be remembered that the tank was not used extensively until World War II and that many of the principles of its use evolved during that conflict.

Because of the relatively infrequent use of tanks in night combat during World War II, many of our more noted experts in the use of armored equipment have different opinions on the relative value of the use of tanks. Major General Ernest N. Harmon (Ret), World War II Commander of the 2d Armored Division, is one who advocates using tanks in night combat. In a letter written in 1951 he said, "We used the night attack three times in the second phase of the Battle of the Bulge under similar circumstances each time. The snow was deep, which slowed our tanks down to about three or four miles an hour. We were attacking towns built of masonry, in which the enemy had placed his tanks with the muzzles protruding out of the windows. The towns were on a slight elevation from the surrounding country, therefore our attack had to go uphill from 1200 to 2000 yards of open fields. By lining up the night before, and carefully getting the direction angles, we attacked at about five o'clock in the morning during the month of January in a swirling snowstorm and in complete blackness. We managed by this method

to get up to the town and in among the buildings covering the fire-swept zone in pitch darkness. We captured the towns of Devontree, Dochamps and Samree by this night attack method. Our losses were practically negligible. By daylight we had capured the towns."

Many commanders, however, do not agree with General Harmon. Their opinions vary but most of their objections seem to be based upon a general lack of confidence in the practicability of employing tanks in night combat. This feeling is shared by both Armor and Infantry commanders. The Russians felt this way too—prior to World War II. *The Cavalry Journal* quotes a Russian tank commander: "A tank in night combat has no more chance than a blind man in a street brawl." The variance of opinion is understandable, for the tank is not normally suited to action at night because it loses some of its speed, mobility, firepower and the element of surprise. This reduced effectiveness of the tank is in direct conflict with the basic principles of its employment, and is the main reason for a lack of confidence in its offensive use at night. Also, a soldier poorly trained in night fighting inherently fears the unknown, thus reducing his confidence in any type of maneuver at night. He considers the darkness as his enemy rather than a silent and valuable friend.

This lack of confidence within the officer corps and the diverse opinions of experts have had a decided effect on our training publications and written doctrine. Existing publications are neither clear nor complete, and in many cases they are in conflict. Army Field Manual 17–32, published in March 1950, deals with the tactical employment of the tank platoons and companies of armored units. Under the heading of "Special Operations" is the following paragraph: "Though relatively difficult to control, tank units can be employed in properly planned night operations with demoralizing effect. Darkness increases the psychological effect of their shock action." This manual clearly states: ". . . tanks normally operate in close cooperation with other arms" and that ". . . success in battle is certain only when all arms and services work together."

On the other hand, the field manual for the Infantry regiment (FM 7-40) states in Change 2 (March 1952): "Tanks are at a great disadvantage during darkness. They are not normally employed during non-illuminated attacks other than to engage in prearranged fires and to move forward to support the defense of the objective after it has been taken. In illuminated night attacks, with conditions approximating daylight, tanks may be employed substantially as in daylight attacks."

FM 7–20, covering the employment of the Infanry battalion in combat, gives the battalion commander and his staff the same information and leaves them with the same impressions.

The Infantry company commander

uses Field Manual 7–10, *Infantry Rifle Company, Infantry Regiment,* as his "bible" for all phases of the tactical operation of his unit. As the rifle company contains the basic unit that would normally be employed with tanks at night, it should be expected that this manual would devote a lengthy discussion to the basic principles of the night attack with tanks. But the manual contains nothing concerning the possibility of using tank-Infantry teams in night combat. Rather, FM 7–10 discusses the night attack from the standpoint of attached tanks being made "available shortly after capture of the objective." This statement precludes the consideration of the use of tanks in the night attack.

The tank company, however, while organic to the Infantry regiment and an ideal source of tanks for this type of operation, relies on FM 7-35, *Tank Company, Infantry Regiment,* as a guide for tactical employment. Night operations are covered extensively and in great detail, and follow the armor concept as outlined in FM 17-32.

This conflict in written doctrine between Infantry and Armor manuals has had a serious effect upon the training of tactical units. The lack of a clear, complete doctrine, coupled with the varied opinions of senior commanders, results in little or no training of tank-Infantry teams in night combat.

This failure in our training was recently discussed by Colonel Frank T. Mildren, formerly of the Tactical Department, The Infantry School. Commenting on lessons learned in Korea, he noted that the ". . . majority of early losses took place at night. The Communist forces easily discovered the American dislike for night operations." Colonel Mildren also pointed out the lack of night training and its effect on commanders with this comment: "Before 1950 our troops were inadequately trained in night operations. As a consequence, our troops were reluctant to fight at night, and our commanders and staff officers rarely planned any attack for night." In the light of future requirements, this situation could prove disastrous. Failure to resolve the difficulties of night operations during training will necessitate experimentation by units during combat, which might result in large losses. This experimentation with tanks and Infantry would be unnecessary if a clear doctrine for the employment of tank-Infantry teams in night operation were established.

Armor employed in the night attack was successful on many occasions during World War II, and this weapon was not used by the American army alone. Early in the war with Germany the Soviets experimented with tanks in the night attack. The results were highly satisfactory, and the use of the tank at night was emphasized in their planning for the

future. One combat situation even called for tanks to be ferried over a river at night, to gain proximity to the enemy positions before the attack. The Germans were surprised by this night attack with tanks, and fearing complete encirclement, became confused and disorganized. The Russians also massed tanks and Infantry on the Oder River line to accomplish a large-scale night attack. To assure success they employed 4000 tanks and 22,000 pieces of artillery in support of the Infantry. Massed searchlights were used to illuminate the battlefield and total surprise was achieved. The Germans had expected the attack at daybreak. Later in the war, the Germans also chose to attack at night with armor in an attempt to regain the initiative when opposed by Allied air and artillery superiority. The commander of the 104th US Division, realizing the capability of a night attack with tank-Infantry combinations, staged more than 100 successful night attacks during the European campaigns.

Such success is not attained without extensive training. The success of the 104th Infantry Division can be directly attributed to the stress placed on night training. From December 1943 until August 1944, Major General Terry Allen, division commander, required that more than 25% of all training time be devoted to night operations. The men were physically capable of engaging in night attacks, and the unit commanders were fully confident that they could do so. CONARC is aware of the necessity for such training, and has acknowledged its importance in requiring that combat units conduct 33% of all tactical training at night. This is certainly a step in the right direction, but Major Stephen E. Cavanaugh, Jr, writing in *The Infantry School Quarterly* of October 1953, feels that Army Training Program 7–300 does not place sufficient emphasis on night training. He wrote:

". . . Millions of trainees have spent several hours at night listening to messkits rattling or watching for the light of a match at different ranges, but this training is seldom followed up, and is, consequently, of little value.

"Future training programs should elaborate in greater detail on night training subjects and the goals that are to be achieved. . . . Night training should be fully integrated with other subjects, instead of becoming isolated exercises to be used by commanders as fixed solutions for filling the requirements."

In producing an Infantry regiment capable of accomplishing its mission in combat, ATP 7–300 requires only eight hours of tank-Infantry night training at platoon and company level. The time allotted is not sufficient for the thorough training of individuals and units in a night operation of this kind. Adequate training for this operation will be stressed only when our commanders receive a clear and consistent doctrine in which they have confidence. These requirements—and their acceptance by senior commanders—seem obvious when a thorough investigation is made of the many situations in which armor may be used advantageously in the night attack.

The main purpose of a night attack with tanks is to avoid heavy losses which might result during a daylight attack. By taking advantage of the excellent concealment provided by darkness, tanks and Infantry can cross areas covered by heavy automatic and antitank fire. This was well demonstrated by the Canadian operation "Totalize," in August 1944, against strong German defenses south of Caen. These defenses were manned by elements of three German divisions located on small elevations which dominated the open plains of the area. The Canadian II Corps attacked at night with eight columns of approximately 200 armored vehicles and 1900 men each, to

seize objectives four or five miles south of the line of departure. At 0600 on the following morning, all units were on their assigned objectives, with few losses in tanks and personnel. The losses that could have been anticipated from a daylight attack would have been much higher.

Attacking at night with tanks allows the attacking force to maintain the momentum gained in daylight operations. This continued maneuver prevents the enemy from reorganizing on newly occupied defensive positions during the night, while maintaining the attacker's advantages of the initiative. The enemy will thus be kept off balance, making it easier to drive him from his position. The use of tanks with Infantry during darkness also achieves a measure of surprise and gains psychological superiority over the enemy. This is accomplished by a change from normal daylight operations and by the nocturnal use of a weapon not normally considered effective during darkness. The noise of the tanks can be hidden by prearranged artillery fire before the attack. The tank's shock action and tremendous firepower provide the psychological factor that can cause panic at night.

Tanks might be used at night to seize a limited objective required for the launching of a daylight attack. This would assure a strong force with tremendous firepower holding, at daybreak, a position whose loss might preclude all possibility of a successful daylight attack.

As in all types of special combat operations, certain conditions should be present before tanks are committed at night. These conditions, although necessary, are not unusual nor difficult to obtain. In normal terrain, they will not deter the commander from using tanks. The terrain must be suitable for tracked vehicles, provide good routes forward and allow the tanks to move rapidly after they cross the line of departure. The objectives should be close and easily defined in order to assure proper direction and control during the attack. Supporting fires must effectively support all phases of the attack. Time must be allowed for daylight reconnaissance and detailed planning by the attacking elements. This last factor is most important.

There are, of course, disadvantages in

this kind of attack, the greatest being the loss of firepower and mobility of the tank. The decrease in aimed fire and mobility, however, is more than equalized by the protection afforded by the darkness against enemy aircraft and anti-tank weapons. The difficulties of control, organization, movement and direction can be overcome by extensive night training of both Armor and Infantry personnel.

The complex nature of the night attack with Infantry and tanks demands a thorough understanding, by both arms, of the capabilities and limitations of each branch. The success of this operation depends upon excellent control, close coordination and cooperation. This can be achieved only by continuous integrated training. It cannot be obtained by the training of tank and Infantry units separately. This is particularly true within

the Infantry regiment. Lt Col George B. Pickett, Jr in an article published in *Armor*, December 1951, recommends that the organic tank company be withdrawn from the Infantry regiment. This, however, would deprive the commander of the tools necessary to accomplish this training. The close association of small unit commanders at this level allows an interchange of ideas, a comparison of capabilities and limitations and an understanding of problems peculiar to each element. It prevents the misuse of tanks by the Infantry and increases the Infantryman's confidence in tank units.

Although the second world war clearly demonstrated the excellent results obtained by the employment of tanks in the night attack, some commanders still refuse to regard this type of operation as one worthy of merit. This is due to the vague treatment given the night attack by instructional manuals, man's instinctive dislike of night operations and the lack of a clear and thorough doctrine concerning the employment of tanks at night.

Until lessons learned in Korea clearly demonstrated the need for night training, little emphasis was placed on this feature of combat training. Directives now in force provide a number of hours for night training of our soldiers—as individuals and as military units. The time allotted, however, is not sufficient to adequately train tank-infantry teams in this special type of operation. All night training cannot be devoted to the night attack, of course, but future military operations may force American troops to depend largely upon this tactical maneuver to conserve lives, equipment and time. To be successful in combat, this type of attack must be emphasized in training. Commanders must believe in its effectiveness and its capabilities, and must clearly see its role in combat. Yet, current teaching restricts the tank-infantry team to attacking at night with illumination or when infrared equipment is available.

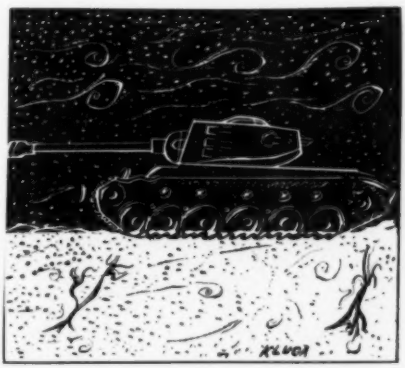
The establishment of a doctrine which will provide the Infantry commander with knowledge of the tank-infantry team's capabilities can be achieved by:

a. Revising Field Manuals 7–10, 7–20 and 7–40 to emphasize the role of tanks in the night attack.

b. Amending Army Training Program 7–300 to include an additional block of eight hours, devoted to the use of the tank-infantry team in the night attack.

c. Requiring Armor officers who are normally assigned to the Infantry division tank battalion to serve short tours of duty in the regimental tank companies. This assignment would allow their thorough familiarization with the Infantry units they may have to support at a future date.

In following this doctrine, our army would be adapting its tactics to meet the requirements of modern warfare. Our senior commanders would then be abiding by the truth of the old military proverb which says that, "Darkness is a double-edged weapon and, like the terrain, it favors the one who best uses it and hinders the one who does not."



RED CROSSES and GUNS

LT COL DOUGLAS LINDSEY

I was standing in the lobby of the Open Mess, quietly minding my own business, when I was assaulted from the rear —without warning—by a sound whack between the shoulder blades. I pivoted and managed to remain on my feet only to find that I had just been greeted by a colonel known to me as "Big Mo." Mo is built like a battleship but he is not from Missouri.

"I see you're still playing soldier," said Mo. He eyed, at the same time, my silver leaves and gold caduceus.

I nodded affirmatively. I was a pre-med student when I first knew Mo. He always seemed to think it rather odd, and even inconsistent, that a medic should be bucking hard at ROTC drill practice, trying to make squad leader.

"I see you medics are *really* trying to go tactical these days." That one threw me and I had to ask for clarification.

"As soon as I finish the course here," added Mo, "I'm going to take command of a regiment. I was brushing up on the current Tables of Organization and Equipment, and I find that the medical company now has weapons right in the TOE! Since when did we abrogate the Geneva Convention?"

"We haven't, Mo," I explained. "The Convention has always permitted the arming of medical troops for self-defense. We did it in the Pacific in World War II."

"Yes, but we did it quietly and under cover there. Now we've come right out in the open."

"It may have been quietly, but it wasn't under cover. It was the exercise of a legitimate prerogative. The reason we've come out in TOE's now is because of the heavy burden that was placed on theater commanders to scrape up arms for medical personnel when they weren't authorized. Even arming only 50% of the medics would take some 10,000 weapons for a field army. That's a lot of equipment to 'scrounge.' If we're going to use it, it's time we put it in the tables."

"By golly," said Mo, "I never realized there was some legitimate basis and sound thinking behind this. I thought it was just an idea of some bloodthirsty medic," he said, looking at me rather suspiciously.

"While you're at it, Mo, I'll bet there are a few other things about the provisions of the Geneva Convention that you didn't know either." . . . I've known Mo long enough not to be afraid of needling him a little bit. . . .

At this point we adjourned to a smaller room of the Mess and proceeded to spend an evening discussing the provisions of the Geneva Convention . . . and a few other things.

The questions that Mo raised have been posed by many other Infantry commanders, staff officers and even, surprisingly, by a number of senior medical officers. It might be well to bring these questions out and see exactly what the Geneva Convention says about them.

There have been several "Geneva Conventions." However, the one we will discuss is known as the "Geneva Convention of 12 August 1949 for the Protection of War Victims." (A full text is contained in Department of the Army Pamphlet 20-150, October 1950.)

Actually, there are four texts resulting from the diplomatic conference convened in Geneva in 1949. The conference deliberated from 21 April to 12 August. One of the objectives was to revise the previous Geneva Convention pertaining to the treatment of prisoners of war and the relief of wounded and sick in armies in the field. Another was to revise the 10th Hague Convention of 18 October 1907 pertaining to the adaptation to maritime warfare of the principles of the Geneva Convention of 6 July 1906. In addition, the conference established a

new convention for the protection of civilians in time of war.

The conference of 1949 established four texts. The one we are most concerned with is:

Geneva Convention for the Amelioration of the Condition of the Wounded and Sick in Armed Forces in the Field.

There are three other texts pertaining respectively to the wounded, sick and shipwrecked members of the armed forces at sea; the treatment of prisoners of war and the protection of civilian persons in time of war.

Here are some common questions that Mo raised, with some answers right out of the text.

Q. Isn't arming the medics in violation of the Geneva Convention?

A. Not at all. The text of the convention is clear:

ARTICLE 22

"The following conditions shall not be considered as depriving a medical unit of establishment of the protection guaranteed by Article 19:

(1) That the personnel of the unit or establishment are armed, and that they use the arms in their own defense, or in that of the wounded and sick in their charge.

(2) That in the absence of armed orderlies, the unit or establishment is protected by a picket or by sentries or by an escort.

(3) That small arms and ammunition taken from the wounded and sick and not yet handed to the proper service, are found in the unit or establishment.

(4) That personnel and material of the veterinary service are found in the unit or establishment, without forming an integral part thereof.

(5) That the humanitarian activities of medical units and establishments or their personnel extend to the care of civilian wounded or sick."

Q. If my medics bear arms, don't they have to take off the Red Cross armband? It seems to me that the two are incompatible.

A. No. Not only are they not incompatible, but the armband must be worn. Article 40 says in part:

"... The personnel ... shall wear, affixed to the left arm, a water-resistant armlet bearing the distinctive emblem, issued and stamped by the military authority."

Q. But the TOE gives them enough weapons to arm 50% of their personnel. Can't they get by with half a dozen carbines per unit, just to man guard posts for protection against thieves, marauders and the like?

A. No, to both questions. The rationale appears to be that not more than 50% of the medics will be able to break away from their primary technical duties—even for a last-ditch defense. Remember, their job is to take care of their wounded. They do not take care of them if they desert them completely to fight or if they fail to fight, when necessary, to protect them.

A 50% issue of weapons appears to be a reasonable compromise. As for the arms being justified for sentry post and protection against marauders, read Article 22 again. Medical personnel may "use the arms in their own defense or in that of the wounded and sick in their charge." This does not imply to me a limitation on the use of arms for sentry duty at the gate, and for protection of the linen supply and the alcohol barrel. These weapons are to be used, as needed, for protection of medical personnel and

patients against attack by an armed enemy—either regular or irregular forces. In the middle of a dark night an aid station does not appear much different from a battalion CP, nor a hospital much different from a replacement depot. If a misguided enemy attacked such an installation, it would do little good to wave a treaty text at him in the dark or to argue with him if he did not speak English. Under such circumstances you either fight or die—*you* and your patients.

Q. Well, admitting that arms may be a great comfort to the medics, won't we get into trouble if we actually use them against the enemy?

A. No. If the enemy attacks a medical installation and the medics defend it—the enemy is wrong, not our medics. Look at the first paragraph of Article 19.

ARTICLE 19

"Fixed establishments and mobile medical units of the Medical Service may in no circumstances be attacked, but shall at all times be respected and protected by the Parties to the conflict. Should they fall into the hands of the adverse Party, their personnel shall be free to pursue their duties, as long as the capturing Power has not itself ensured the necessary care of the wounded and sick found in such establishments and units. . . ."

If the enemy takes issue with the propriety of an armed medical defense of a medical installation, he has a channel for recourse.

ARTICLE 21

"The protection to which fixed establishments and mobile medi-

cal units of the Medical Service are entitled shall not cease unless they are used to commit, outside their humanitarian duties, acts harmful to the enemy. Protection may, however, cease only after a due warning has been given, naming, in all appropriate cases, a reasonable time limit, and after such warning has remained unheeded."

Q. Can't we protect medical installations against attack by properly locating them?

A. There are two different considerations under "proper location." Certain medical installations can be located at such a great distance from any reasonable military target that there would be no excuse for the enemy to attack them if they were properly identified. However, another "proper" location would be the placement of a field medical unit within the perimeter of the combat unit it serves. Local security would be provided but the likelihood of an attack (incidental to an attack on the combat unit) on the medical unit would be increased. Look at the second paragraph of Article 19:

ARTICLE 19

". . . The responsible authorities shall ensure that the said medical establishments and units are, as far as possible, situated in such a manner that attacks against military objectives cannot imperil their safety."

The joker is the *"as far as possible."* If your medical unit is located where it can do the most good for your troops, it is very likely to be located well forward and near—or within—the area of some other unit or installation. Consequently, it will be subjected to attack by the enemy—though not necessarily deliberately.

Q. Isn't marking the medical unit with Red Crosses sufficient protection in itself?

A. Not at night, it isn't. Besides, you, as a commander, may not wish to advertise the location of your medical installation. The choice is yours to make. The last paragraph of Article 42 reads as follows:

". . . Parties to the conflict shall take the necessary steps, in so far as military considerations permit, to make the distinctive emblems indicating medical units and establishments, clearly visible to the enemy land, air or naval forces, in order to obviate the possibility of any hostile action."

If we use routine and prominent markings on our medical installations, the enemy will be capable of picking out regimental, battalion and division sectors by identifying aid stations, collecting stations and clearing stations. These are rather distinctive installations unless they are under camouflage. I doubt that "military considerations" would permit the clear marking of divisional medical installations. Field army units, however, are often too large to camouflage effectively and are normally marked. One exception is the surgical hospital which is in the division area and is rather small (actually smaller in gross tentage than the division clearing station). As long as it is in the division area, it must follow the local rules of the division with reference to marking versus concealment.

medical personnel may use arms

Q. Shouldn't we consider captured hospital buildings and the equipment of medical units "untouchable?"

A. No. They have a definitely privileged status but are not inviolate. The primary restriction is the fact that the wounded and sick of captured medical installations must be cared for. If you cart away captured *served* for the care of wounded and sick). The other point is found in the third paragraph of the article which indicates that material and stores of medical units shall not be intentionally destroyed.

If you capture a mobile enemy medical unit, deliver it intact to the POW inclosure for use in the care

. . . in their own defense

enemy wounded to an adequately staffed and adequately equipped POW hospital, you can make use of the captured buildings and equipment as you see fit.

ARTICLE 33

"The material of mobile medical units of the armed forces which fall into the hands of the enemy, shall be reserved for the care of wounded and sick.

"The buildings, material and stores of fixed medical establishments of the armed forces shall remain subject to the laws of war, but may not be diverted from their purpose so long as they are required for the care of wounded and sick. Nevertheless, the commanders of forces in the field may make use of them, in case of urgent military necessity, provided that they make previous arrangements for the welfare of the wounded and sick who are nursed in them. The material and stores defined in the present Article shall not be intentionally destroyed."

This article contains two interesting points. First there is a distinction between "fixed medical establishments" (which become booty of war so long as the sick they contain are cared for) and "mobile medical units" (whose material must be *re-*

of enemy sick and wounded. If one of our own medical units is in imminent danger of being captured, medical equipment and supplies *must not* be intentionally destroyed. It is difficult for the enemy to turn our own *medical* materiel against us. And there is a slight (but certainly not dependable) possibility that he may permit it to be used by our own captured medical personnel for care of our captured wounded.

There is a similar article pertaining to the transportation of medical units.

ARTICLE 35

"Transports of wounded and sick or of medical equipment shall be respected and protected in the same way as mobile medical units. Should such transports or vehicles fall into the hands of the adverse Party, they shall be subject to the laws of war, on condition that the Party to the conflict who captures them shall in all cases ensure the care of the wounded and sick they contain.

"The civilian personnel and all means of transport obtained by requisition shall be subject to the general rules of international law."

In the first paragraph of Article 35, I would interpret "protected in the same way as mobile medical

units" as referring to the protection of Article 19, rather than the reservation of the first paragraph of Article 33. This interpretation is strengthened by the provision of the second paragraph of Article 35 that makes medical transportation subject to the laws of war if the wounded and sick they contain are cared for first.

Q. If these medics are armed—and well trained in the use of arms—can't I use them as riflemen in an emergency?

A. No, indeed! Unless medical personnel are fighting in defense of themselves and their patients, any use of them against the enemy would constitute a serious breach of a solemn international agreement.

Q. Many thanks, Doc. I wonder why more people don't know about these things?

A. It beats me. The Convention itself requires that military personnel be trained in the provisions of the Convention.

ARTICLE 47

"The High Contracting Parties undertake, in time of peace as in time of war, to disseminate the text of the present Convention as widely as possible in their respective countries, and, in particular, to include the study thereof in their programmes of military and, if possible, civil instruction, so that the principles thereof may become known to the entire population, in particular to the armed fighting forces, the medical personnel and the chaplains."

The text of the convention is not lengthy. Its wording is clear. Next time you start to make a statement on what the Geneva Convention provides for a particular situation, don't speak from impression or tradition. Make sure. Get out the text (DA Pamphlet 20–150) and read it. It will explain a lot of things about "Red Crosses and Guns."

LT COL DOUGLAS LINDSEY wrote this article to clarify for Infantrymen the provisions of the Geneva Convention and to enable Infantry commanders to make better use of their medics.

During WW II he served as a battalion surgeon with the 29th Division. In Korea, he was CO of the 30th Medical Group.

Col Lindsey is now assigned to the Army Medical Service Board at Walter Reed Army Medical Center in Washington, D. C.

THE SECRET

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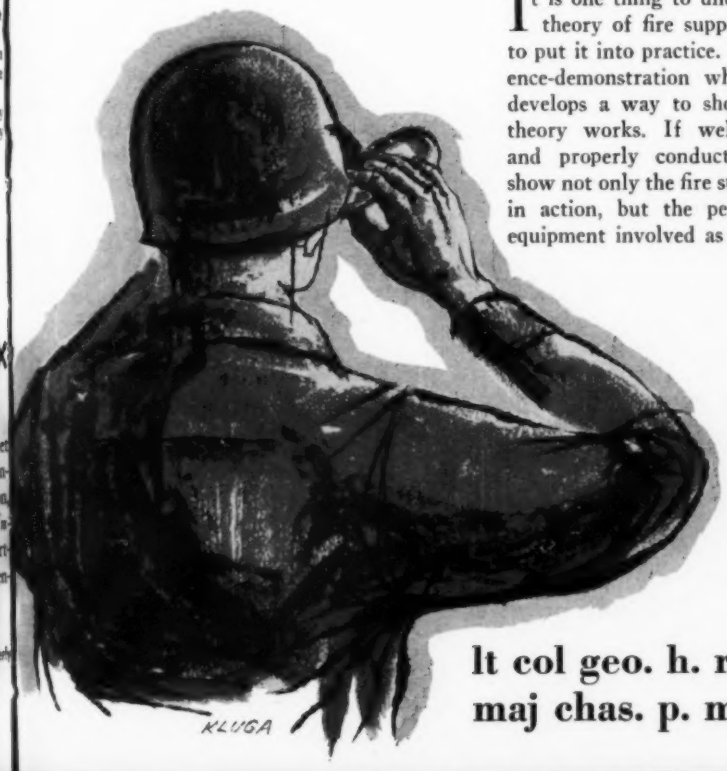


It is one thing to understand the theory of fire support, another to put it into practice. The conference-demonstration which follows develops a way to show how the theory works. If well rehearsed and properly conducted, it will show not only the fire support chain in action, but the personnel and equipment involved as well.

lt col geo. h. russell
maj chas. p. murray

The Principal Instructor/Narrator makes frequent references to the tactical situation that is shown in Figure 1. The class can follow these references if two large maps similar to Figure 1 are used for the demonstration and assistant instructors place appropriate symbols on them as they are needed.

Figure 2 is a suggested layout for the demonstration which can easily be modified to meet the needs of your own unit. Figure 3 is a key to Figure 2. It lists the personnel and equipment required at each station. Here, again, you may need to make local modifications.

The results of our recent presentation before the 3d Infantry Division were unusually successful, owing principally to careful planning. Every participant, including those who take part in the county fair, must know what to do and when to do it. Two rehearsals should be sufficient with proper supervision.

Introductory Conference: First Hour

Time: 50 minutes.

Purpose: To show how fire support is coordinated.

References: Department of the Army Training Circular Number 9, May 1953; *The Infantry School Quarterly*, July 1955, pages 105 to 112; and FM 100-5, September 1954, paragraphs 238 to 244.

Method: Start with a demonstration as suggested in the next paragraph. Following this, the instructor explains the importance of fire support and its relation to maneuver. He then discusses and demonstrates the various means of communication. Next, he describes the division fire support organization and the capabilities of the fire support weapons, then explains the common numbering system for targets. (A detailed discussion appears in the July 1955 issue of *The Infantry School Quarterly*. Since the needs and state of training vary for different units, the instructor places emphasis where it is most needed by his unit.)

Administrative Matters: a. Use an attention-getter to start this hour. We suggest that you have the rifle platoon leader request fire on a specific concentration. For example, using Figure 1, "Tactical Situation," have him request concentration AL 110 (on Objective B). Have the request relayed through an artillery FO to his fire direction center and on to the weapon. Have the artillery fire one blank round and the FO report the results.

b. As you discuss the various personnel, weapons and communication means (see Figure 3), have someone at the appropriate station raise a colored flag (red for artillery and blue for Infantry).

c. The assistant instructors stay in the tents (see Figure 2) when they are not taking part in the demonstration and keep their equipment there.

d. You should have a public address system that can accommodate at least 25 field telephones. These, of course, are separate from the equipment on display.

Comment: The introductory conferences will give your class enough knowledge of terminology to let them follow the second hour demonstration intelligently. It is wise, however, to hold a short question and answer period before you start the demonstration.

Fire Support Coordination Demonstration: Second Hour

Time: 50 minutes.

Purpose: To show fire support coordination in action.

References: See *The Infantry Quarterly*, July 1955, pages 105 to 112.

Method: See the following script. (Each man who takes part in the demonstration must have a copy of it.)

Script for Demonstration

Principal Instructor/Narrator: The PI/Narrator has two assistant instruc-

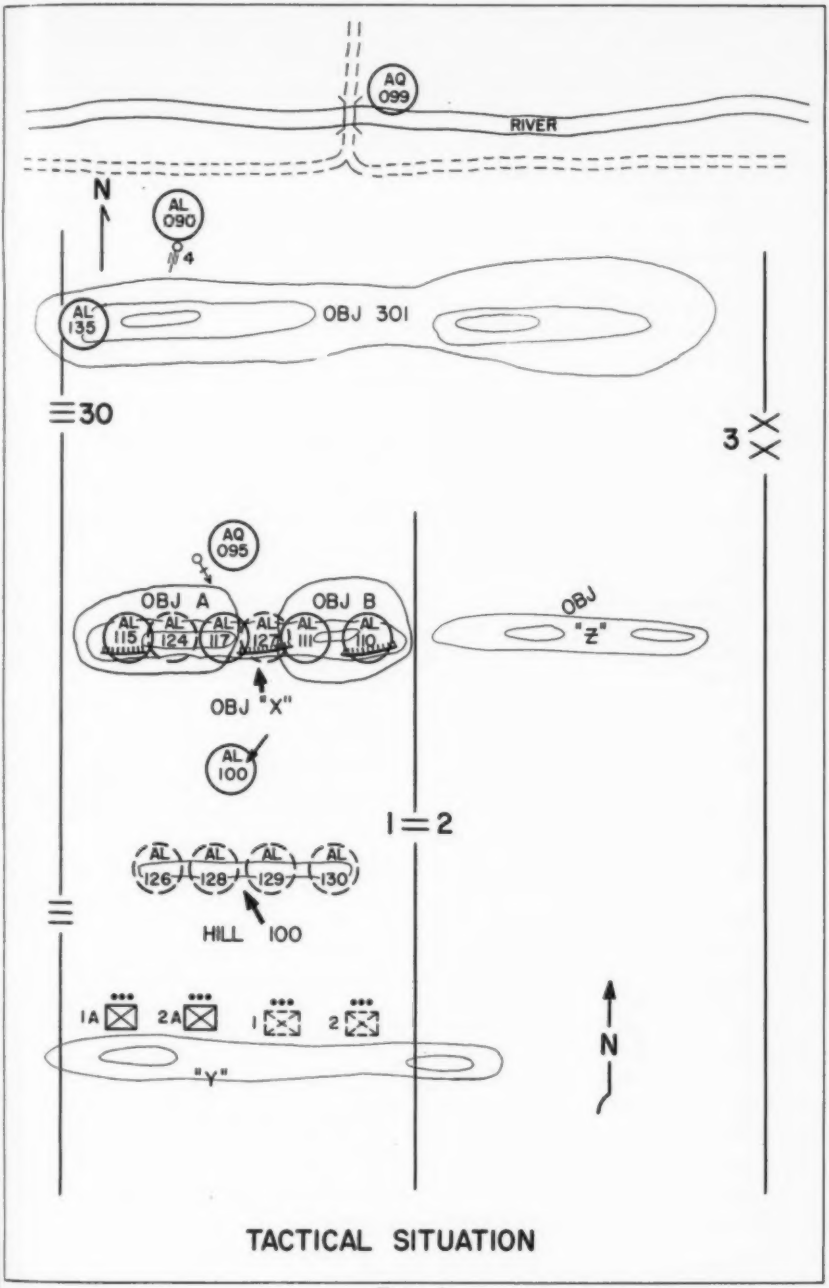

AQ 099
RIVER
N
AL 090
4
AL 135
OBJ 301
30
3
AQ 095
OBJ A
OBJ B
AL 115
AL 124
AL 117
AL 127
AL 111
AL 110
OBJ "Z"
OBJ "X"
AL 100
1=2
AL 126
AL 128
AL 129
AL 130
HILL 100
1A
2A
1
2
"Y"
N
TACTICAL SITUATION

Figure 1

tors who follow the progress of the demonstration by placing appropriate symbols on large maps of the tactical situation (Figure 1) or by pointing to the desired area on the maps. (Situation charts in Figure 2.) The PI/Narrator starts the demonstration with the following introduction:

Gentlemen, the 3d Division[1] has been attacking. At present it is held up by a strong enemy defense which blocks its avenue of approach. The 30th Infantry has seized Hill Y and is currently meeting strong resistance from Objective X.

The 30th Infantry is attacking with its 1st and 2d Battalions abreast (the 1st Battalion is on the left with Able and Baker Companies on line). The two rifle platoons you see on the situation maps are the leading platoons of Able Company. (See Figure 1.) The concentrations which have been fired appear in green on the map.

The Commanding General, 3d Division, has ordered the 30th Infantry commander to seize Objective 301. The time of attack is 1600 today. The time, for problem purposes, is now 1200.

In his order to the 30th Infantry commander, the 3d Division commander states that the 41st FA Battalion, consisting of three 105mm howitzer batteries, will be in direct support of the 30th.

The 39th FA Battalion, which has three 155mm howitzer batteries, will be in general support of the division. The corps commander has directed the 21st FA Group, two 105mm howitzer battalions and one 8-inch howitzer battalion, to reinforce the 3d Division artillery.

Tactical air will be available to support the attack.

The corps commander has allocated four atomic weapons to 3d Division. Commanding General, 3d Division, has decided to use two of them in his scheduled fires. He will keep the remaining two on call for use as the situation develops. After discussing the matter with his fire support coordinator and his G2 and G3, he elects to employ one of the *scheduled* atomic weapons in front of the 30th Infantry. Naturally, he asks for and receives recommendations from the commanding officer of the 30th Infantry regarding the weapon's employment.

Now, let's get down to specifics. The commander of the 30th Infantry visits his 1st Battalion commander and tells him:

"Attack at 1600, seize Hill X and, *on order,* continue the attack to seize the left half of Objective 301. The 2d Battalion will attack on your right." (The assistant instructors follow this on their maps.)

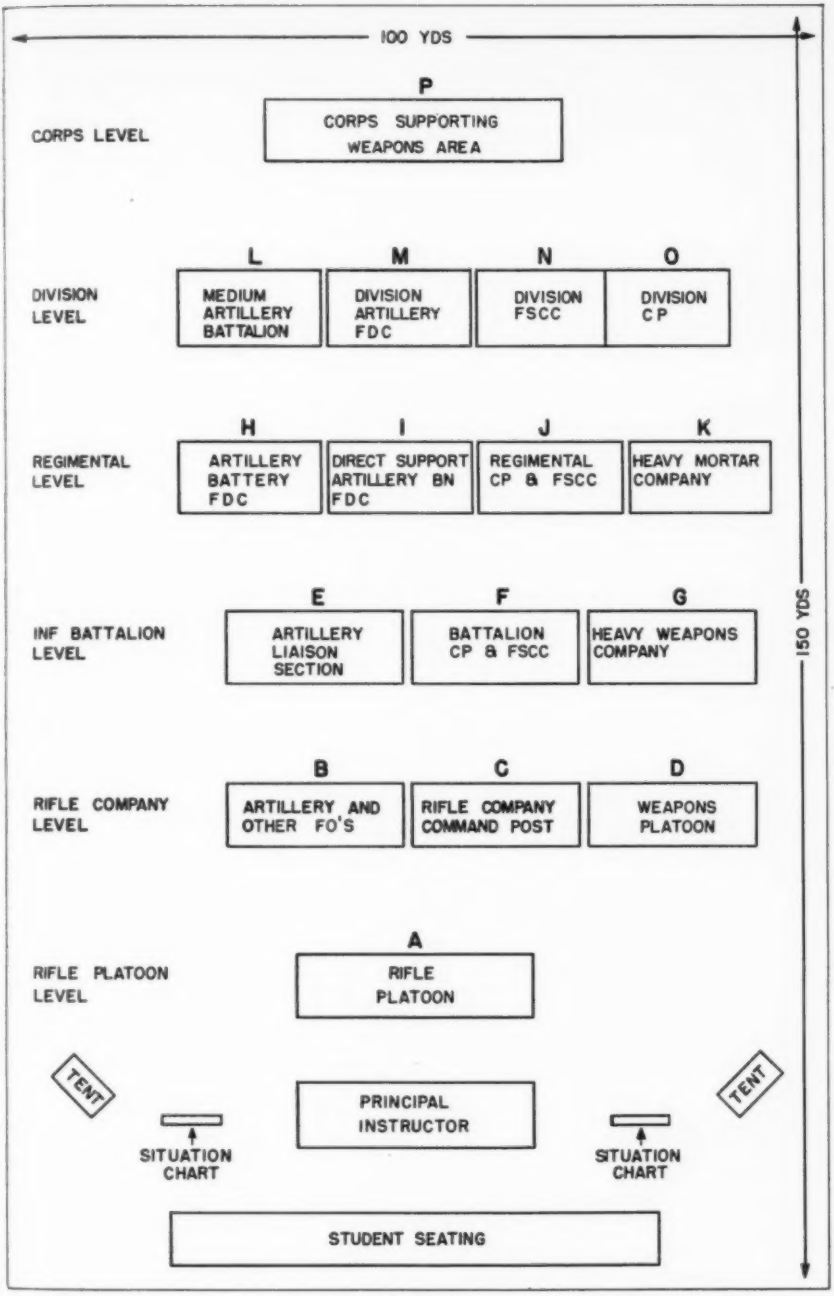
The 30th Infantry commander then tells the CO, 1st Battalion, what artillery, heavy mortar, air and atomic weapon support is available. Then he leaves.

The CO, 1st Battalion, plans the continuation of his attack. We now hear him giving his plan to his executive officer, S3, fire support coordinator and heavy weapons company commander.

1st Battalion Commander: (The speaker identifies himself by raising a blue flag from Station F. He speaks over the PA system, using the telephone at the appropriate station.) "Here it is — the 30th Infantry continues the attack at 1600 today from its present positions. This battalion will seize Objective X and, *on order,* move out to seize the left half of Objective 301.

"Able Company will take Objective A and Baker Company, Objective B." (Assistant instructors follow this on large maps.) "Charlie Company will be in reserve.

[1]The 3d Division and its units will be used throughout this demonstration.


100 YDS
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ARTILLERY LIAISON SECTION
BATTALION CP & FSCC
HEAVY WEAPONS COMPANY
B
C
D
RIFLE COMPANY LEVEL
ARTILLERY AND OTHER FO'S
RIFLE COMPANY COMMAND POST
WEAPONS PLATOON
A
RIFLE PLATOON LEVEL
RIFLE PLATOON
TENT
TENT
PRINCIPAL INSTRUCTOR
SITUATION CHART
SITUATION CHART
STUDENT SEATING

Figure 2

STATION	TOE	COMMO	PERSONNEL	PA SYSTEM
Principal Instructor	None	None	PI and 2 AI (one on each situation chartboard)	1 Microphone hooked to central PA system
A Rifle Platoon	1 LMG 1 3.5 RL 1 AR	1—AN/PRC6 1—Reel Equipment CE-11	Platoon Leader Platoon Sergeant Messenger Weapons Crews (skeleton)	1 telephone hooked to central PA system
B Arty & Other FO's	1—¼-ton truck	2—AN/PRC6 1—AN/PRC9	Arty FO 3 Assistants	1 telephone hooked into central PA system
		1—AN/PRC10 1—Telephone TA-43/PT	81mm Mortar, FO	
		1—AN/PRC10 1—Telephone TA-43/PT	4.2" Mortar FO	
C Rifle Co CP	1—¼-ton truck	1—AN/PRC6 1—AN/PRC10 1—Panel Signal VS-17GVX 1—Reel Equipment CE-11 1—Telephone TA-43/PT 1—SB-18/GT	Co CO Co Ex O 1st Sgt Messenger	3 telephones hooked into Central PA system
D Wpns Platoon	1—60mm Mortar 1—57mm RR	1—AN/PRC6 1—Reel Equipment CE-11	Platoon Leader Section Leaders Weapons Crews (skeleton)	None (Wpns Platoon Leader at Co CP in skit)
E Arty Liaison Sec	1—¼-ton truck & 1—¼-ton trailer	1—AN/PRC9 1—AN/VRQ2 1—Telephone TA-43/PT 1—SB-18/GT	Liaison Officer 4 Assistants	None (Arty Liaison Officer at Bn CP in skit)
F Bn CP & FSCC	SOP Radio Vehicles	1—AN/GRC7 1—AN/GRC9 1—AN/PRC10 1—AN/VRC10 1—AN/TRC7 1—Telephone TA-43/PT 1—Reel RL-39 1—Panel Set AP30 C 1—Panel Set AP30 D 1—Panel Signal VS-17GVX 1—SB-18/GT 1—SB-22/PT	Bn CO Ex O Arty Ln O (FSC) S3 Air Hvy Weapons CO FAC Hvy Mortar Ln Agent	3 telephones hooked into central PA system
G Hvy Wpns Co	1—MG-M1917 A1 1—MG-M1919 A6 1—MG-Cal .50 1—81mm Mortar 1—106mm RR	1—AN/PRC10 1—Panel Signal VS-17GVX 1—Telephone TA-43/PT 1—SB-18/GT 1—SB-22/PT	Co CO Platoon Leaders Section Leaders Squad Leaders Weapons Crews (skeleton)	None (Co CO at Bn CP in skit)

Figure 3

Figure 3 (continued)

STATION	TOE	COMMO	PERSONNEL	PA SYSTEM
H Arty Btry FDC	1—105 How Normal FDC Equipment	Per Arty SOP	Per Arty SOP	1 telephone hooked into central PA system
I D/S Arty Bn FDC	Per Arty SOP	Per Arty SOP	Per Arty SOP	1 telephone hooked into central PA system
J Regt'l Cp and FSCC	Operations-Intelligence Section (less tents) Artillery Ln Section	2—AN/GRC7 2—AN/GRC9 1—AN/GRR5 1—AN/PRC10 1—AN/VRQ3 1—AN/TRC7 1—AN/MRC20 1—Reel Equipment CE-11 1—Telephone TA-43/PT 1—Reel Unit RL-31 1—Reel RL-39 1—SB-18/GT 1—SB-22/PT	Regt'l FSC (Arty Bn CO) Regt'l S3 Air Hvy Mortar CO FAC	3 telephones hooked into central PA system
K Hvy Mortar Co	SOP 4.2" Mortar FDC equipment 1—4.2" Mortar	Per unit SOP	Wpn Crew (skeleton) FDC Pers	None
L Med Arty Bn	1—105mm How	As desired (may show FDC)	Wpn Crew FDC Pers	None
M Div Arty FDC	As desired	As desired	As desired	None
N Div FSCC	Per unit SOP	Per unit SOP	Div FSC (CG, DIVARTY) NGO G3 Air Air Ln O	3 telephones hooked into central PA system
O Div CP	Per Div SOP	Per Div SOP	As desired	None
P Corps Support Weapons Area	155mm Gun 8" How 240mm How Honest John Corporal Nike *Note*—Signs and pictures will suffice if equipment unavailable	As desired	May have only an instructor to explain weapons or pictures, etc.	None

"Since there will be an atomic strike on Objective 301, we can concentrate most of our fires on Objective X. I want fires planned to neutralize the enemy on Objective X and to protect our reorganization on Objective X and Objective 301. I want you to plan on using smoke to cover our move across the open area

to Objective X. I also want all available fires on Objective X to hit simultaneously with the A-weapon burst over Objective 301.

"After this, shift fires to cover the reverse slope of Objective X. Continue them until you get a request from the commanders of Able and Baker Companies to shift the fires during their assaults.

"Fire Support Coordinator, make certain the enemy mortars behind Objective X are eliminated."

Battalion Fire Support Coordinator (Displays red flag from Station F.): "Div Arty has located those mortars, sir, and will knock them out before you attack. There's another thing, Colonel. I think we should get an air strike on those dug-in tanks at concentration AL 110. Arty hasn't been able to do much with them."

Battalion Commander (Raises his blue flag.): "Good! Get that laid on as soon as possible.

"Here's something else I want you to do. Get all the information available on what effects we can expect from the A-weapon. We need this so we can tie in our fires better with it."

(Battalion commander then addresses his heavy weapons company commander.)

"Heavy Weapons Company Commander, will you be able to keep your weapons in general support for the attack on Objective X?"

Heavy Weapons Company Commander (Raises blue flag from Station F.): "Yes, sir. I'd recommend general support by the 81mm mortars and the recoilless rifles with one section of recoilless rifles on the left flank and two sections on the right flank where they can support the attack on Objective X and give antitank protection as well. I would suggest, also, putting one section of heavy machine guns in direct support of Able Company and one in direct support of Baker."

Battalion Commander (Raises his blue flag.): "That will be okay." (The battalion commander turns to his executive officer.)

"Executive Officer, I want you to tell the companies my plans so they can start planning their attacks at once.

"Are there any questions? . . .

"Okay! Fire Support Coordinator, get the fire plan firmed up and to me by 1430. It is now 1230.

"S3, you and I are going over to Able and Baker Companies to study the ground in detail. Executive Officer, we will be back about 1400."

PI/Narrator: While the 1st Battalion executive officer is putting out the battalion commander's instructions, members of the battalion fire support coordination center (Figure 2, Station F), the FSC (artillery liaison officer), the heavy weapons company commander, the battalion S3 (air) and the forward air controller (each rises and displays an appropriate flag when his name is mentioned) discuss the 1st Battalion commander's decisions on fire support. We will tune in on their discussion later.

Meanwhile, Able Company commander has received his attack instructions and is planning his supporting fires. With him are his artillery forward observer, 81mm mortar forward observer, the leader of the direct support heavy machine gun section and his platoon leaders. Let's listen to what they have to say.

Able Company Commander (Raises blue flag from Station C.): "We are going to attack with two platoons abreast and one in reserve. We will take Ob-

jective A; Baker Company will take Objective B." (See Figure 1.)

"I want fire to neutralize the enemy on Objective A during the entire time we're moving to our assault position. Take a look at Hill 100. It is not much of a hill but any enemy there could slow down our attack. The enemy mortars behind X and the tanks out at concentration AL 110 can give us a bad time if they are not neutralized."

Artillery Forward Observer (Raises red flag from Station C; he is with the company commander.): "I was just talking to my liaison officer, Captain. He tells me that battalion has requested an air strike on the dug-in tanks just before we jump off. Div Arty will eliminate the mortars behind Hill X before H-hour. As for neutralizing Hill 100, I can take care of it. I'll ask for four concentrations on it and two on Objective A."

Able Company Commander (Raises blue flag from Station C.): "That's fine. Let's plan a concentration between AL 115 and AL 117 (see Figure 1) and four concentrations to cover Hill 100. Neutralize Objective A starting at H-hour and plan smoke for Objective B. Weapons Platoon Leader, what do you recommend for your 60mm mortars and 57mm recoilless rifles?"

PI/Narrator: At this time, assume that the planning phase is completed. For the next few minutes we will show you how fire requests are handled, how the common numbering system is used, how the safety of friendly troops is considered and the way the fire support coordination centers assist in coordinating fires.

The attack is under way. An atomic weapon was exploded on Objective 301. The air strike was effective on Objective B and our lead elements are moving toward Hill 100. Supporting artillery and mortar fires are in the process of neutralizing Objectives A and B and suspected enemy weapons at concentration AL 126.

At this time we cut in on the 1st platoon leader, Able Company, who is using his AN/PRC 6 radio to call the artillery FO on the Able Company net.

1st Platoon Leader (Raises blue flag from Station A.): "Forward Observer, this is Able 1. There's an enemy machine gun firing at me from a clump of bushes about 200 yards right of concentration AL 126. Can you get some fire on it?"

Artillery FO (Raises red flag from Station B.): "Able 1, this is FO. Roger. I see the target and will get fire on it immediately."

PI/Narrator: Although most of the available artillery is firing on previously planned targets, it is always prepared to shift these fires to lucrative targets of opportunity. Remember that fires are available on call even though they have not been planned in advance. It is better to plan fires thoroughly before an operation, but if you can communicate with the fire support agency, you can always get fire.

Able Company's forward observer's fire request went directly to the artillery fire direction center. The rounds requested are now on the way. It is well to remember that *fire requests go directly to the agency that does the firing.*

Some of you, no doubt, want to know how the fire support coordination center gets into the act. Here's how: When the Able Company forward observer requested fire, his radio transmission was monitored by the artillery liaison officer, who is also the battalion fire support coordinator. The battalion fire support coordinator noted on his map the pertinent

data of this request. Since the means requested was both adequate and available, he did not interfere. When the artillery fire direction center fired this *on call* mission, the battalion fire support coordinator noted the new concentration number and placed it on his map.

Let's cut in on the battalion fire support coordination center now. The artillery liasion officer has just recorded the new concentration and is talking to the heavy weapons company commander.

Battalion Fire Support Coordinator (Artillery Liaison Officer raises a red flag from Station F.): "Captain, Heavy Weapons Company, my forward observer with Able Company just fired a new concentration, AO 206, at coordinates 361541." (Assistant instructors place this on the tactical situation maps.) "There was an enemy machine gun at that spot. The machine gun has stopped firing, but that doesn't mean it has been eliminated. You have an antitank section over to the left of Objective X. Can the rifles hit this target?"

Heavy Weapons Company Commander (Raises blue flag from Station F.): "They certainly can. That's well within the capabilities of our 106's on the left. I'll alert them on that target at once. I'll also get the new concentration number to my 81mm mortar platoon fire direction center and to my heavy machine gun platoon leader."

Battalion Fire Support Coordinator (Artillery Liasion Officer raises red flag from Station F.): "Fine. I'll pass this on to Able Company commander and the regimental FSCC.

"Hey, what's this? Forward Observer Baker is requesting a fire mission on a group of enemy at coordinates 380541. Unless I'm mistaken, this group is not enemy, but a patrol from the 2d Battalion.

"Forward Observer Baker, this is the battalion fire support coordinator. Hold your request until we verify the target as enemy. I think it's a 2d Battalion patrol. Wait! Out."

PI/Narrator: You have just seen how members of the FSCC monitor fire requests and take whatever action is necessary to coordinate fire agencies and assure the safety of friendly troops. You noticed that fire requests go directly from the requesting unit to the firing agency; *not through the battalion* fire support coordination center.

The fire support coordination center may, however, take action to augment the fire request of a forward observer or a unit in order to give them better fire support. To illustrate this let's look back at our tactical situation.

Baker Company has just taken Objective B. The Baker Company artillery forward observer calls for 105 howitzer fires on an enemy counterattack which has struck Baker Company from the vicinity of Objective A. It appears that enemy tanks are moving into the area to join in the counterattack.

The 1st Battalion fire support coordination center, while monitoring, has acquired this information. Listen.

Battalion Fire Support Coordinator (Artillery Liaison Officer raises red flag from Station F.): "Captain, Heavy Weapons Company, Baker Company is pinned down by a counterattack coming from the rear of Objective A. Able Company has not yet reached Objective A. What fires can you place on concentration AL 127, AL 111 and on the reverse slope just behind these areas?"

Heavy Weapons Company Commander (Raises blue flag from Station F.): "I have one antitank section of two 106's and a section of heavy machine guns with Able Company that can hit AL 111 and AL 127. I can shift one section of 81mm mortars from targets in front of Able Company to cover that reverse slope. I'll call Baker Company

commander and prepare to fire on his request."

Battalion Fire Support Coordinator (Artillery Liaison Officer raises red flag from Station F.): "That's fine! I'll request 155 and 8-inch fire behind Objective A. The heavy mortar company liaison agent is placing fire in there now. I'll also ask S3 Air for an immediate air strike on those suspected tanks."

PI/Narrator: The fires arranged by the 1st Battalion fire support coordination center were delivered and the enemy counterattack was beaten, which demonstrates the value of monitoring.

We find that the 1st Battalion has taken Objective X and the 2d Battalion, Objective Z. We now turn our attention to the 30th Infantry fire support coordination center (Station J). The demonstration that follows illustrates the planning required to use an atomic weapon.

As we tune in, the regimental fire support coordinator (he is the direct support artillery battalion commander) is talking by phone to his gunnery officer, who is at the direct support artillery battalion's fire direction center (Station I).

Regimental Fire Support Coordinator (Raises red flag from Station J.): "You say the forward observers with both the 1st and 2d Battalions asked for all available fire? I have reports from both the 1st and 2d Battalions which indicate the enemy is withdrawing and seems to be in a state of confusion. Both battalion commanders believe an atomic weapon strike slightly beyond Objective 301 will be worth while. Right now we have two light planes checking the situation. Wait a minute! Regimental S3 Air has a report from the light aircraft now. I'll call you later."

Regimental S3 Air (Waves blue flag from Station J.): "Fire Support Coordinator, our light planes report approximately two enemy battalions with at least 15 tanks. The troops and tanks are in the open. One enemy battalion is coming from the east and one from the west." (Assistants place arrow on tactical situation maps to indicate the general locations of tanks and enemy battalions.) "Each is about 1500 yards north of Objective 301. They are approximately one mile apart at this time, but appear to be heading for the bridge at concentration AO 099. The pilots report this is the only intact bridge over the river.

"The 1st and 2d Battalions report large numbers of enemy withdrawing toward the bridge. At present they're in the vicinity of Objective 301. They estimate these troops will reach the bridge within the next 40 minutes. The 30th Infantry commander feels this will make a good atomic target and will talk to the division commander about it."

Regimental Fire Support Coordinator (Raises red flag from Station J.): "We've been waiting for this. I have my gunnery officer on the line now. Tell me, S3 Air, can you get an air strike on the bridge at concentration AO 099? With the bridge out we could really tie the enemy up."

Regimental S3 Air (Raises blue flag from Station J.): "The regimental commander had the same idea, but the division commander turned it down. The general plans to make use of the bridge. However, he does want us to do everything possible to make the enemy bunch up."

Regimental Fire Support Coordinator (Raises red flag from Station J.): "Thanks a lot. . . .

"Hello! Gunnery Officer? This is your battalion commander. Get all the artillery possible beyond the bridge at concentration AO 099. The object is *not to destroy* the bridge but to delay the enemy's movement out of the area. See if you can get corps artillery to put a 280mm spotting round out there so we

can fire an atomic shell on him if division decides to use one. No! Wait! Don't use a spotting round. It may tip our hand so we can't surprise him with the atomic round.

"Keep me posted. Meanwhile, I'll call the division fire support coordinator and start him thinking about it." . . .

(He calls the division FSC, who is Commanding General, Division Artillery.)

"Division Fire Support Coordinator, we believe we may have an atomic target building up in the vicinity of concentration AO 099. The 30th Infantry commander believes an atomic strike there will be worth while. He's talking to the division commander about it now."

Division Fire Support Coordinator (Commanding General, Division Artillery raises red flag from Station N.): "Thanks for telling me. We have our eye on that possible target. Our atomic staff officer is computing data on it now to determine the possible effect. From the information we have it looks like a lucrative target. If the division commander decides to shoot the mission, the 280mm battalion will fire it. I'll keep you posted."

PI/Narrator: The division commander did decide to use the atomic strike. It was effective and resulted in our forces gaining complete control of Objective 301 and the bridge. Let me point out again that the success of fire support depends on planning and coordination.

Are there any questions?

Note: The script shown here is brief. It can be added to in many ways to emphasize further the points made or to bring out new points.

Exhibition of Fire Support Personnel and Equipment (County Fair Technique): Third Hour

Time: One hour and 35 minutes.

Purpose: To provide each student with an opportunity to examine fire support equipment and talk to fire support personnel.

References: See appropriate field manuals and TOE's.

Method: The PI/Narrator, having broken the assembled class into groups (see *Administrative Matters* below), says the following:

PI/Narrator: Gentlemen, during this period you will have an opportunity to meet the fire support personnel of the unit and examine their equipment.

To expedite matters, this class has been divided into lettered groups. Each group letter corresponds to the letter of the station it will visit *first*.

Each group will spend about five minutes at each station. (The time may be longer depending on what you want covered.) During this time, you will be given a brief orientation on the equipment and personnel you find there. When you hear my whistle signal, go to your next station.

Here's the way it will work. Group A, for example, will start at Station A. At the end of five minutes I will blow the whistle and Group A will move to Station B, C will move to Station D, and so forth. You will fall out now on the appropriate guide; each guide has a lettered card corresponding to his group. He will take you to your first station and stay with you until time to return to the bleachers."

At five-minute intervals the principal instructor blows a whistle and the groups change location. This will take approximately 80 minutes for 16 stations. When all groups have visited all the stations, the instructor gives them about five minutes to reassemble in the bleachers. When the groups have reassembled, he will conduct a five-minute summary. Since local needs will determine where emphasis is required, the summary is left to the instructor's discretion.

Administrative Matters: a. If this

instruction is presented only to the 155 officers and 8 warrant officers of a regiment, the total student body will be 163. This figure was used in computing the time stated above. A larger or smaller group will require a change in the time schedule. The third period of instruction breaks down as follows:

1. Introduction ..... 5 minutes
2. Visit to each of 16 stations (approximately 11 men per group) .....80 minutes
3. Reassembly ..... 5 minutes
4. Summary ..... 5 minutes

1 hr and 35 minutes

b. Station personnel and equipment should be identified by an appropriate placard.

c. The guides and all station personnel should be rehearsed at least two times.

* * * * *

Fire support is essential to success in combat and must be understood by all concerned. Most of us must see an operation to fully understand it. Showing your unit a fire support demonstration similar to that described here will do a great deal to assure general understanding.

LT COL RUSSELL and MAJOR MURRAY discussed the proper use of fire support in the July 1955 issue of the Quarterly. Both learned their fire support lessons in combat.

Lt Col Russell served as a battalion commander with the 2d Division in Korea. During WW II he saw action in the Pacific Theater. Major Murray fought in Europe during WW II. He was a company commander with the 30th Infantry.

Lt Col Russell is chairman and Maj Murray is a member of the Battalion Committee, Tactical Department, TIS.

Answers . . . to the Quiz

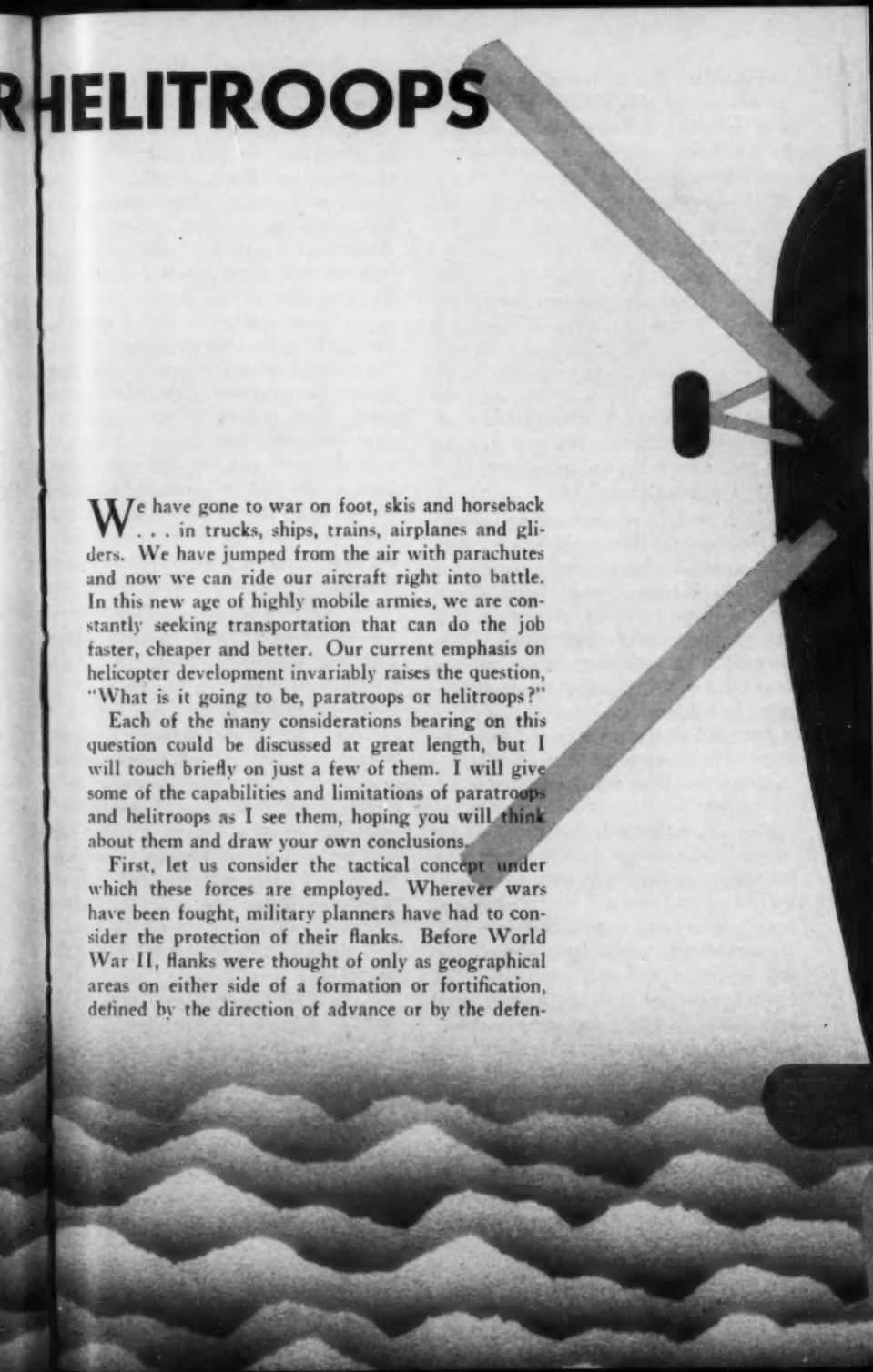
Possible score 100 points, Expert 90-100, Sharpshooter 70-80, Marksman 50-60, Recruit 30-40 and Bolo 0-20. For complete detailed discussion of the answers check the references listed below.

1. As a regimental special staff officer, the Counterfire Platoon Leader is responsible to the regimental commander (through the S2) for the planning and coordination of counterfire information, training and functioning in the regiment. He operates the regimental counterfire information center under the supervision of the S2. (Par. 28a (1), FM 7-25.)
2. One mission is assigned to each patrol. If a commander wishes to have several missions completed, he should send out several patrols. (Par. 163, FM 21-75, October 1950.)
3. a. (Par. 90c (10), FM 23-5.)
4. L-19 or L-20. (TO&E 7R, February 1955.)
5. d. (Par. 12c, FM 5-25.)
6. a. (Par. 159d, FM 23-55.)
7. The troop carrier unit commander. (Par. 74a, FM 57-30.)
8. General support, direct support and attachment. (Par. 7c, FM 7-15.)
9. b. (Par. 6f, TM 9-7012.)
10. d. (Par. 10d, FM 11-151.) All of the answers listed are antijamming measures, but the immediate action should be a readjustment of your set.

PARATROOPS OR

lt ivan l. slavich jr

R HELITROOPS



We have gone to war on foot, skis and horseback . . . in trucks, ships, trains, airplanes and gliders. We have jumped from the air with parachutes and now we can ride our aircraft right into battle. In this new age of highly mobile armies, we are constantly seeking transportation that can do the job faster, cheaper and better. Our current emphasis on helicopter development invariably raises the question, "What is it going to be, paratroops or helitroops?"

Each of the many considerations bearing on this question could be discussed at great length, but I will touch briefly on just a few of them. I will give some of the capabilities and limitations of paratroops and helitroops as I see them, hoping you will think about them and draw your own conclusions.

First, let us consider the tactical concept under which these forces are employed. Wherever wars have been fought, military planners have had to consider the protection of their flanks. Before World War II, flanks were thought of only as geographical areas on either side of a formation or fortification, defined by the direction of advance or by the defen-

sive position. But in World War II, the parachute and glider disrupted this classical definition and directed our thinking to a different level. A new and dangerous approach had been opened from the great air mass above our heads—the vertical flank. With it, the age of the vertical envelopment was born.

The most frequent application of the vertical envelopment has been with parachutists, but another school of thought is gaining prominence. It foresees the vertical envelopment being accomplished by helicopterborne forces, replacing the costly and unwieldy characteristics of parachute operations. We will have to use one or the other and many people believe that we will need both.

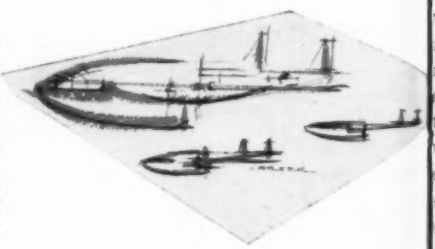
With the lack of emphasis on helicopter development during the 1940's, their vast potential was not fully recognized until the Korean conflict when small, reconnaissance-type helicopters were used to evacuate wounded personnel. Only then did military thinkers see the tremendous value of flying combat troops directly to the battlefield.

Since Korea the research and development of helicopters has been greatly accelerated, but if we were to engage in an all-out war in the next few years there is little doubt that parachutists would be used. This is simply because the type of helicopters envisioned by most to replace the parachutist are still on the drawing boards or in some stage of research and development. Convertiplanes also are being developed and may eventually replace both troop carrier aircraft and helicopters—but not for several years. Therefore, let us project our thinking to about 1960 when there may be enough helicopters in the transport class to accomplish a large-scale airborne operation.

One of the most difficult factors to predict is the cost of training and equipment five or more years from now. We should keep in mind that the price tag will probably be an important factor in the choice between paratroops and helitroops. Today each parachutist needs three weeks of specialized training and $400 worth of special equipment. A helicopterborne soldier requires no special equipment or extra training. Thus, assuming no change in the future, it will cost far less to train and equip the individual helitrooper. The cost of aircraft, however, is another consideration. As an example, the C-119 costs only $375,000 while a helicopter with approximately the same load-carrying capacity, the H-41, costs almost three million dollars. Again, we must remember that this is the price of a pilot model and we can expect that mass production of the H-41 would make the figures compare more favorably. If it does, the higher cost of training and equipping parachutists may give the edge in favor of using helicopterborne forces.

Let us consider the conduct of an airborne operation and compare some of the problems involved in the use of paratroops and helitroops.

Assume we are at war five or ten years from now. Our factories have solved most of the technical problems of helicopters, have mass-produced a variety of them, and we have a choice of using one of two methods to accomplish an airborne assault mission. We could use an airborne division—now in theater reserve—or we could airlift one of the reserve divisions (closer to the front) with helicopters.



Mobility . . . key to our success

If we use parachute forces, they will have to marshal near departure airfields large enough to accommodate troop-carrier, fixed-wing aircraft. Despite some enemy bombing, we can suppose that we've been able to keep most of these airfields operating and, at present, could get our airborne division into the air with no difficulty. Enemy air is still active, however, and his intelligence is remarkably effective. He certainly knows the locations of our airfields and that we may use them as marshalling areas. This reduces the secrecy of our operation to some extent—even though the enemy may not know the specific objective of our airborne force. Although it is not the most important consideration, it is well worth noting. Of more significance is the enemy's atomic capability.

The airfields we will have to use are not reserved solely for parachutists. They are bases for the air force's tactical aircraft and serve as important terminals in our vast supply system. As such they may be considered by the enemy as profitable atomic targets, even without parachute forces in the immediate vicinity. The constant threat of enemy mass destruction weapons has caused us to keep our airborne division away from these airfields and, as a result, we'll need about a week to plan, coordinate and launch our assault (par. 419, FM 100-5).

If we use our transport helicopters, we won't have to marshal large concentrations of aircraft, troops and supplies at a few departure airfields. We could mount our assault airlift from scattered, unprepared sites in rear areas adjacent to natural cover. Our loading operations wouldn't present lucrative targets for enemy atomic weapons. Our chances of surprising the enemy would be better since our counterintelligence measures

would be far more effective. Many of the officers on our staff feel that the operation could be done quickly, without giving the enemy as much time to react as would large formations of troop-carrier aircraft flying greater distances. On the other hand, the advantages of preparing for an airborne assault hundreds of miles from our objective cannot be realized with helicopters.

Although helicopters can carry as much as air force troop carriers, they still cannot operate over more than a 100-mile radius with a normal payload. This is an important limitation which could seriously affect the operation, particularly if we choose an objective any appreciable distance to the enemy's rear.

Keeping these thoughts in mind, we must consider one of the more important factors in any airborne operation—the weather. We need highly accurate weather forecasts whether we use troop-carrier aircraft or helicopters. Rain, low ceilings or other inclement weather affect either type of aircraft—but not to the same degree.

Some of our veteran paratroopers remember when rain delayed one of the drops made by the 187th RCT for six hours in Korea. They also know from

personal experience how wind can affect a parachute and how difficult it is to reorganize an outfit that has been scattered to—and by—the four winds. They know that T-10 parachutes are difficult to collapse in a 10-knot wind and are practically useless in winds above 20 knots. But even remembering how often —despite the best weather forecasts— winds have changed considerably from the time they left the departure airfield until they were over the drop zone, many would still rather jump down the enemy's throat than have to be cradled gently to earth in a helicopter.

Chances are, the weatherman would not be able to disrupt our schedule as easily if we use helicopters. In fact, taking off into a strong wind greatly increases their lifting capability and light rains or low ceilings are less trouble to them than to troop-carrier aircraft. We are fortunate, however, that we don't have to conduct this particular operation over mountains or in the desert. One of the most limiting characteristics of the helicopter is the reduction of its lifting ability in hot weather or at altitudes above 5000 feet.[1] At any rate, we may be able to overcome weather conditions with helicopters, but weather can have a serious effect on parachute operations.

Once airborne, our forces have to get back on the ground to fight. Although paratroops can jump onto almost any kind of terrain, the drop zone should be relatively flat and treeless. Here the parachutist and helicopter pilot are in agreement, with two notable exceptions: the helicopter cannot land in heavily wooded areas and a parachute unit would probably incur a lot of jump casualties if dropped on a mountain. The type of terrain in the objective area, then, may be very important in selecting the proper unit for our mission. Five or ten years ago we would have tried to select an objective area that had airfields or airfield sites within it so we could land followup forces, supplies and equipment. Today our transport helicopters make this a minor consideration.

One of the strongest arguments in favor of using helicopters is that the units involved would be able to maintain their tactical integrity. Helicopters can place a unit on the ground intact with all the equipment needed to accomplish the mission. Such a unit is an effective fighting force *upon landing*. On the other hand, once a parachute unit has descended safely onto the landing zone, it has to search for and gather its fighting gear—which may have dropped some distance away—and then move to an assembly area before it can get organized to fight. It is during this period of disorganization and scurrying around after landing that a parachute force is most vulnerable to attack. Reorganization may take considerable time, depending on the type of terrain, dispersion on the drop zone, whether it's a day or night drop and the experience of the unit.

Since tactical integrity of a unit includes both men and equipment, it is important to consider the type of equipment we can send with our force. The H-41 helicopter and the troop-carrier aircraft carry approximately the same weight, but the helicopter's capacity is not limited by the configuration of its fuselage. By using external cargo slings we can see to it that the right equipment will be landed with the right unit at the proper time and place, and with more assurance that the equipment will be usable.

Helicopters can also help to keep a unit mobile after the initial landing. Not only do they bring in the ground transportation—so vital in an atomic war when units must disperse, strike and dis-

[1]This is the helicopter's major limitation today. It may be overcome with new developments such as the "rocket on rotor" which the Marines are now using with some success on the H-19.

LT IVAN L. SLAVICH, JR received an ROTC commission in 1951. After completing the basic airborne course at TIS, he became a weapons platoon leader with the 25th Division in Korea and later aide-de-campe to the assistant division commander. Lt Slavich, a former instructor in the Airborne-Army Aviation Department, TIS, is taking flight training at Gary AFB, San Marcus, Texas.

perse—but they can pick it up again and move it quickly to other vital areas. (Obviously, this capability applies just as well to moving other types of equipment or personnel.)

To summarize briefly: the helicopter does not require large airfields for departure or arrival; its use may be more conducive to maintaining secrecy; it is affected less than fixed-wing aircraft by weather conditions; it helps to preserve tactical integrity for the forces transported; the size and shape of equipment do not prevent the helicopter from lifting it, and the helicopter can help keep the Infantry mobile after the objective is reached. On the other hand, helicopters cannot operate over long distances and their lifting ability may be reduced by hot weather and high altitudes.

The advantages we can gain with helicopters reflect the disadvantages of using troop-carrier aircraft and, in the same sense, the helicopter's limitations are opposed by the main advantages of fixed-wing aircraft.

A parachute unit can prepare for operations hundreds of miles from the battle area and fly rapidly to the objective. This gives an airborne unit intratheater as well as intertheater mobility. Keeping such units in theater reserve poses a constant strategic threat to the enemy which he can counter only by keeping a large part of his forces away from the battlefield.

The comparisons I have made are based on our past experience with airborne operations and my views concerning the use of helicopters which are still in the development stage. I realize that any validity in my reasoning depends on overcoming many technical difficulties with our present helicopters. I also think that any large-scale war in the future will be fast moving—and mobility may well be the key to our success. Helicopters could provide that mobility to a degree never before conceived and not yet fully realized.

THE TROJAN HORSE

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LIAISON
LINKS THE CHAIN OF COMMAND

CAPTAIN
FRANCIS L. LION

A division forward CP area.

It is 0900 on the second day of a field training exercise in Germany early in 1954. The sign outside a tent proclaims "Ln O Tent." Inside, three officers are dozing peacefully. A hundred yards away the division operations center is working steadily, efficiently. The briefing tent is empty except for the officer and enlisted assistant keeping the situation map up to date. . . .

An operation tent at a combat command CP on the same field exercise.

The assistant S3 in charge has not heard from the liaison officer sent to division shortly before midnight. It is now 0900. Operations for the day are in full swing but little information on future plans is available. The CO is checking periodically by radio to see if there is any new information about the mission of the combat command. . . .

A CP in the field. The CO and S3 are planning an operation.

A lieutenant from an adjacent unit reports in as liaison officer. The CO questions him about the plans of the adjacent unit but the lieutenant has only a fuzzy idea about his unit's operations. He didn't bring a copy of his commander's operations order. . . .

A Combat Command operations tent in the field.

During a field exercise, the liaison officers are ordered to return to their battalions and brief their COs on the situation and plans. One of them takes the operations order, jumps in his jeep and leaves. Another doesn't bother to take the operations order but does check at message center to see if there is any distribution for his unit. The third wants to make an overlay of the S2 situation map but has no overlay paper, grease pencils or colored pencils. . . .

Most officers can recall similar examples of ineffective liaison work.

By minimizing the value of liaison officers, commanders occasionally throw away a chance to gain intelligence and to improve coordination with subordinate units. Commanders sometimes appoint the first available officer for the job. No effort is made to determine the new liaison officer's qualifications, nor is he given any specialized training.

But the importance of good liaison is not always neglected. Many commanders have expressed their views about the value of good liaison work in letters of commendation to liaison officers.

One reason for the frequent failure to appreciate the value of liaison is the lack of information about the purposes of liaison and the duties of the liaison officer. FM 101-5, par 69, lists some liaison procedures and gives the commander some pointers on their use. However, the best definition comes from FM 7-17, par 36a:

"The purpose of liaison is to provide, by personal contact, the desired cooperation, exchange of information, and coordination of effort between and within units."

In general, we distinguish between liaison and command liaison, the main difference being in the individuals who carry it out. When Lt Colonel, 1st Bn, discusses future operations with Lt Colonel, 2d Bn, over a cup of coffee, they are engaged in command liaison. When Major S3, 1st Bn, discusses these same plans with Captain Ln O from the 2d Bn, it is liaison insofar as the captain is expected to inform his commander of the plans revealed to him.

"The effectiveness of liaison depends on the efficiency of the liaison officer and the cooperation of the headquarters to which he is sent."

This sentence from FM 7-17, par 36c, hints at the responsibilities of commanders, staff officers and liaison officers.

For the commander, good liaison with adjacent units and higher headquarters may mean the difference between timely, complete, coordinated planning or hastily conceived, uncoordinated efforts resulting only in operational difficulties. Liaison can spell the difference between success and failure.

The CO must, therefore, choose his liaison officers with care, making sure that they possess the knowledge, know-how, integrity and loyalty to represent

him at the visited headquarters. Conversely, visiting liaison officers must be welcome at the CP and treated as an important link in the chain of command. They are not merely high-paid messengers or welcome additions to the night duty roster.

They must frequently be briefed on the situation and plans by staff officers. They should be allowed access to the situation maps and journals whenever possible. Of course, the liaison officers must use their judgment when working in a CP and avoid interfering with operations.

A liaison map and briefing tent are desirable, if the necessary personnel are available to keep the situation map up to date and if all the information available at the S2 - S3 operations center is available also at the liaison tent.

The S2 or S3 who barks at visiting liaison officers, "Get out of here, Captain, and stay out of our way!" is not helping his commander, himself or the unit of the "offending" liaison officer. His unit cannot fight alone, nor can any outfit. Mutual support and coordinated planning are the key to victory. Without liaison, this support and planning are difficult at best, impossible at worst.

Effective liaison calls for an officer in good physical condition, able to fulfill his duties in all kinds of weather, regardless of how many hours or days have passed since his last hot meal or good night's sleep. He must be tireless and alert in his efforts to secure information and maintain contact, either personally or by radio or telephone, with his own and the visited headquarters. He must be tactful in his dealings with visited commanders and staff officers. If his actions or words antagonize the personnel with whom he must work or from whom he can get information, he will be unable to provide effective liaison.

The liaison officer must be "self-propelled." The commander designating an officer to represent him at another headquarters must be sure that this man will do anything possible to assist him and to assist the visited unit without being asked, without constant supervision and without repeated guidance.

Frequently, new liaison officers have reported to an S3 without the equipment needed for the performance of their duties. This delays and disturbs normal operations since someone must gather material or even do the job for the liaison officer. It also undermines the confidence of the staff and commander in the professional competence of the visiting liaison officer.

Some of the equipment needed by liaison officers includes:

a. A complete set of maps of the scale used by all units to cover the area of operations.
b. A map board and acetate.
c. Red, blue and black pencils and grease pencils.
d. Sufficient overlay paper of adequate size to make copies of situation maps.
e. Notepad and message book.
f. Extract of the current SOI.
g. Compass, ruler and coordinate square.
h. Emergency ration.
i. Proper type of radio for communication with his own headquarters and for entering one additional net as directed.
j. Individual weapon and equipment to enable him to operate away from his parent unit for an extended peroid if necessary.
k. A competent driver with a properly maintained vehicle to minimize transportation failures.

Liaison officers should be thoroughly familiar with the methods of employ-

ment, capabilities and limitations of their units so they can properly advise visited commanders and adequately represent their own commanders. It is desirable to choose an officer with command experience, preferably one who has been a member of the unit for some time. This insures greater cooperation with other officers and familiarity with the organization and methods of operation of the unit. It also facilitates securing and disseminating information because the liaison officer will know where to go and whom to see.

A good liaison officer must keep his eyes and ears open. In addition to what he learns during briefings, he can often gather information which may be of value to his unit commander and staff in making their plans. Some seemingly inconsequential bit of intelligence may be just what is needed to allow the S4 to make his POL requests two days in advance or to show the S3 that his estimate of the situation is partially incorrect and needs reappraisal. The liaison officer may help the communications officer locate a wire break or spot the new CP of a unit which has changed position.

Finally, liaison work requires loyalty. The liaison officer will come in contact with men and officers of all ranks. And he will hear many comments about units and personalities. As far as the men, officers and units of his own organization are concerned, whatever he hears must be considered confidential. Individuals, even entire units, may have failed during a certain operation but these failures are a family affair. The head of the family—the commander—will take care of them.

The liaison officer who betrays this trust damages his own and his unit's reputation. He becomes a hindrance rather than a help to those who depend on him. When he hears remarks of a personal nature while visiting another headquarters, he must refrain from taking sides. And upon returning to his own CP, his report to the commander and staff must be limited to the facts. It will not help him to bring back gossip.

The liaison officer must frequently be loyal to two commanders. But this dual loyalty is not a divided loyalty—we are all in the same army with a common goal: battle success.

this is your baby.

He's going to grow. You'll be interested in everything he does. He's going to keep you on your toes with things you haven't even heard of. Keep up with what's new. Subscribe to your *Infantry School Quarterly*.

how would YOU do it?

Capt Robert M. Grow

Read the situations, study the map and see if you come up with Captain Grow's solutions to these tactical problems.

GENERAL SITUATION

It is 1500. You are Captain, Company L. Your mission is to plan and execute a helicopterborne attack to seize Bull Creek Bridge, Objectives 3 and 4 and to establish a defense of the southern portion of airhead line (see map). H-hour is 0500 hours tomorrow.

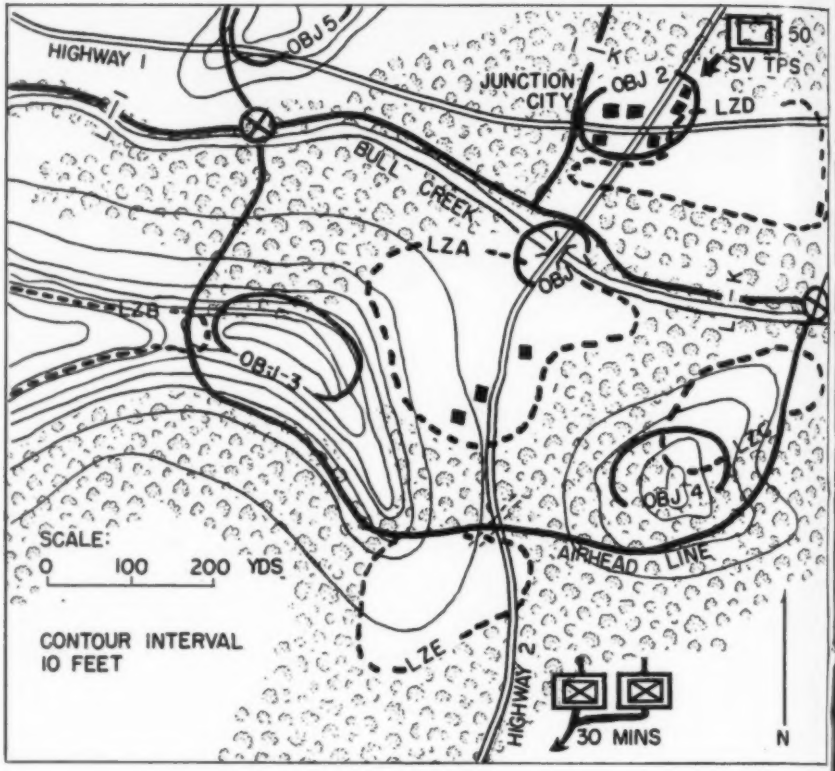
SITUATION 1

Your battalion commander gives you the following orientation:

"Intelligence reports that there are about 50 aggressor service troops in Junction City, 5 miles to the north of the present line of contact. Company K will take care of those enemy forces when it seizes Objective 2. There are no reports of enemy on Objectives 1, 3 and 4.

"The pioneer and ammunition platoon will land with your company and will repair the bridge (Objective 1) if necessary. Be sure to send at least one rifle platoon with the P&A platoon to secure Objective 1. Then let the P&A platoon leader attend to the bridge and prepare it for demolition. (You may be forced to destroy it later.) Bull Creek is fordable by foot troops but not by vehicle. Link-up with our forces from the south isn't expected until H + 7 hours.

"It appears that the bridge is obscured from Objective 4, so you shouldn't receive trouble from that point. The enemy's tanks and Infantry located south of the airhead line are the big threat—they're within 30 minutes' striking distance of your area. For this reason, I want you to set up a road block on Highway 2 at the airhead line. You'll have two sections of the antitank platoon and can include a squad from the P&A platoon to establish the road block. After Company K seizes Objective 2, one of its rifle platoons will be attached to you to reinforce your defense of the southern portion of the airhead line."



PROBLEM 1

In what order will you seize Objectives 3 and 4 and establish the road block? Which of the following plans will you use for the disposition of your troops to carry out your mission?

PLAN A

1st Plat, P&A Plat (-): Objective 1; Objective 4 (on order).

2d Plat, 57mm RR Sqd, 2 Antitank Sections and P&A Sqd: Road block.

3d Plat, 57mm RR Sec (-): Objective 3.

60mm Mortar Sec: General support from the vicinity of Objective 1.

PLAN B

1st Plat, P&A Plat (-): Objective 1.

2 Antitank Sections, P&A Sqd: Road block.

3d Plat, 57mm RR Sec (-): Objective 3.

2d Plat, 57mm RR Sqd: Objective 4.

60mm Mortar Sec: General support from the vicinity of Objective 1.

SITUATION 2

It is 1600. The battalion commander has reviewed your plan of attack and is now showing you, on a map, the landing zones which the S2 and helicopter commander have chosen for the operation.

"Take a look at these landing zones," the battalion commander says. "We shouldn't have trouble landing our aircraft within the entire area simultaneously. You'll probably want the 3d platoon

(reinforced) to use Landing Zone B, so we'll select the saddle as Landing Site B-1. The 2d platoon (reinforced) can use Landing Zone E. The point at which the highway goes into the woods will be its landing site. You can have part of the 1st platoon land in Zone D and the remainder in Zone A (in order to seize both ends of the bridge simultaneously) or you can have the entire platoon land in Zone A.

PROBLEM 2

Where should the 1st platoon land? Why?

SITUATION 3

It is H + 5 minutes (0505 the next day). Although intelligence reported no enemy on Objective 3, the 3d platoon has met resistance from approximately 30 aggressors and is now deployed in the saddle, unable to advance. The 1st platoon has secured the bridge (Objective 1) and the 2d platoon has established the road block. Company K is still fighting to clear Junction City. The battalion reserve, a platoon, has landed in the east portion of Landing Zone D. You have called for 60mm mortar fire on Objective 3.

PROBLEM 3

What further action should you take to seize Objective 3?

SOLUTIONS AND DISCUSSION

SOLUTION TO PROBLEM 1

Since Objective 3 dominates the bridge, you must seize that high ground immediately so that the P&A platoon can work on the bridge without drawing enemy fire. Enemy tanks and Infantry are concentrated in the south and will probably move up Highway 2 initially. Therefore, the establishment of the road block should be carried out simultaneously with the seizure of Objective 1. Use Plan A for the disposition of your troops. It provides greater strength than Plan B for the defense of the road block. Plan B overemphasizes the importance of Objective 4. You must seize Objective 4 eventually, but that high ground does not rank as high in order of importance as Objectives 1 and 3 or the road block. If enemy tanks and Infantry attack immediately from the south, the 2d platoon can force the enemy to deploy and the 1st platoon can take Objective 4 before the enemy coordinates his attack. By that time, Company K's rifle platoon should be available to reinforce your units.

SOLUTION TO PROBLEM 2

The entire 1st platoon should land in Zone A at the south end of the bridge. Usually, it is to an attacker's advantage to seize both ends of a bridge simultaneously. In this case, however, a portion of your 1st platoon would be forced to land and operate in Company K's zone. This could result in your rifle units or aircraft becoming involved in Company K's operation. Since Bull Creek is fordable by foot, you could seize both ends of the bridge at the same time by sending a portion of the 1st platoon upstream or downstream from the bridge to attack it from the north side.

SOLUTION TO PROBLEM 3

You have called for mortar fire on Objective 3 and should now maneuver your forces. Order the 1st platoon to make a coordinated attack against Objective 3 with the 3d platoon. The assault position for the 1st platoon can be on the 3d platoon's left flank. The 3d platoon can assault from its present position in the saddle. The battalion reserve is too far away to help capture Objective 3, but could be used to secure Objective 4.

A 1950 graduate of USMA, CAPT ROBERT M. GROW has served with the 82d Airborne Division and with the 187th RCT in the Far East. He learned about helicopter operations as a member of the Air Mobility Committee, Tactical Department, TIS. Capt Grow is now attending the Advanced Course at TIS.

Training in escape and evasion must be accompanied by survival training.

SURVIVAL and the SOLDIER

Capt David E. Grange, Jr.

Since the cease fire in Korea, a number of articles have been written by UN servicemen describing their experiences as escapees or evaders. In the many articles that I read, I found that—in almost every case—an evader was captured before he could reach his own lines because he lacked survival training. The new uniform code of conduct for future US prisoners of war specifies that prisoners should attempt to escape. The success of these escapees will depend, to a great deal, on a knowledge of survival techniques.

One of the most common mistakes made by escapees and evaders was that of abandoning concealment and asking for food or shelter around built-up areas. Natives often turned them over to the enemy. And, ironically, when these men were given food, it was seldom much better than food they could have found for themselves. Large numbers of men in similar circumstances have given themselves up because they lacked the knowledge which would have enabled them to subsist and find shelter until they could reach the safety of friendly troops.

In any discussion of survival training, we should also give consideration to the by-passed unit—i.e., a unit that is still combat-effective, although cut off. Such a unit should be able to carry on as an operational force behind enemy lines—either as guerillas or as a Ranger unit.

The individuals comprising such a unit must know how to live off the surrounding country.

I do not maintain that every soldier be an expert woodsman, but even with the knowledge that the average boy obtains as a Boy Scout, our soldiers would be much better prepared for emergency situations. Not only would these men be better able to carry on as escapees or evaders—they would be better field soldiers as well. If a unit were trained in this lore, the leader's job would be easier.

I have prepared a list of subjects which might be taught during basic and unit training. These will serve as a foundation for survival training. A unit which is sent to an area with strange or unfamiliar surroundings may add any additional special training as needed. Local inhabitants might be of considerable aid in such cases.

The first step in survival training should be to impress the student with the importance of mastering this subject. He should then be told the four requirements of a successful survivor. They are:

1. He must be mentally prepared for the fact that he may become a survivor.
2. He must be in good physical condition.
3. He must be able to select equipment that will enhance his chances of survival.
4. He must know how to use any equipment he has and have faith in it.

The training should embrace the following subjects:

A. Signaling

1. Construction of identification T's for aircraft, with special emphasis on the use of expedients such as foliage, clothing and rocks.
2. Smudge fires.
3. Shiny equipment (mess kits, mirrors, etc.).

Purpose: To receive supplies or be picked up by rescue craft.

B. Shelters

1. Construction of shelters from ponchos.
2. Construction of shelters from natural materials.
3. Construction of dugouts and caves.
4. Methods of insulating these shelters to make them as comfortable as possible.

Purpose: To insure that students (if separated) retain equipment which can be used to construct sheltesr. To stress importance of having good shelter in order to maintain strength and avoid sickness.

C. Fire-Making

1. The use of a binocular lens or compass eye piece; friction devices (bow and spindles using boot laces as bow thong); blank round method, use of gun powder.
2. Finding tinder and kindling.
3. Best methods of laying a fire.
4. Types of fires for cooking, warmth.
5. Construction of heat reflectors.
6. Cooking various types of food.

Purpose: To teach soldiers to keep fit by staying warm and eating properly prepared food.

D. Living off the land

1. Animals and birds: recognition of tracks and signs.
2. Traps and snares.
3. Weapons expedients such as fish spears.
4. Edible plants.

Purpose: To impress on the student the amount of food that is available to him and how to obtain it.

E. Clothing

1. Care of clothing (cleaning, drying, etc.).
2. Making expedient clothing from blankets, ponchos or skins.
3. Preservation of footwear.

Purpose: To impress the student with

the importance of retaining valuable articles and equipment. (Stress their varied uses and benefits.)

F. Movement

1. Maintenance of direction by the use of compass, stars and terrain features. Also, the "wrist watch" method of finding North.

2. Selection of the best routes of travel.

3. The importance of pacing. (Allow students to negotiate pace course.)

4. Conservation of strength (especially in mountain areas).

5. Overcoming obstacles by constructing rafts, fabricating climbing ropes, etc.

Purpose: To instill in the student the knowledge that he is capable of movement in strange terrain with minimum fatigue.

G. Miscellaneous

1. Environmental hazards, i.e., snakes.

2. First aid. The treatment of common sicknesses.

3. Water purification.

4. Basic knot tying.

5. Tree climbing.

6. Standard equipment that should be retained by the survivor.

7. Foot care.

8. Construction of a simple survival kit from an empty shoe polish can. This kit should contain fish hook, line, wire for snares, razor blade and matches. Students should be encouraged to carry these kits or to design similar types.

Purpose: To bring to student's attention any necessary information that was not covered during earlier classes.

This course can be administered very simply. Begin with a series of lectures and conferences. A demonstration should follow, with mock-ups showing the construction of shelters, snares and the use of expedients. Next, a whole company might participate in a field problem, thus putting this knowledge to practical use. In this most important phase, each soldier can prove to himself that he will be able to survive by his knowledge and wits if cut off from friendly sources of supply. In so doing, students will gain the confidence which is so necessary to the escapee or evader in surviving. At this point, a good exercise would be to have the members of the unit move to some easily recognizable point in "buddy teams", using the stars alone as a guide. It can be done.

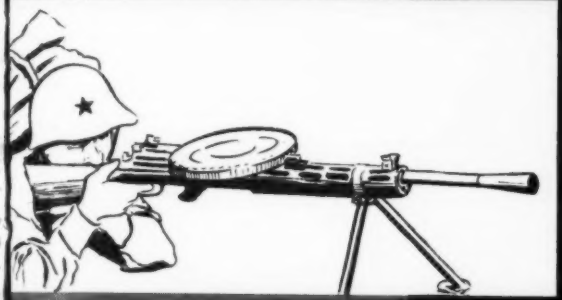
One of the best sources of the information needed to conduct this training is the Boy Scout Manual. Additional information, applicable to special areas, will be found in Army Field Manuals 72-20 (Jungle Operations), 31-70 (Survival in Arctic Regions) and 21-22 (Survival at Sea). Nature has supplied most of the equipment, the remainder will probably be found in the supply room.

The enthusiasm of the unit commander will be the real driving force behind such a program of instruction. He must instill in his men the confidence that they can—as members of a by-passed unit—live and operate as a fighting force, and can evade capture as individual escapees. The commander's enthusiasm will probably catch on very quickly, too. After all, what man wouldn't have more pride in himself—knowing he is able to take care of himself almost anywhere in the world.

I would define true courage to be a perfect sensibility of the measure of danger, and a mental willingness to endure it.

—Gen Sherman

AUTOMATIC WEAPONS OF . . .



USA

USSR

ENGLAND

If you asked a Russian soldier to name the best squad automatic weapon in the world, he would probably answer, "The Degtyarev, of course." A British Tommy would give you a different reply . . . "The Bren light machine gun," and if you asked a US Infantryman the same question, he would probably tell you that the Browning Automatic Rifle is the world's best.

Naturally, every Infantryman hopes and believes that his particular weapon is superior to any other. Let us, however, assume a neutral role and compare these weapons, as well as the methods which the respective nations have devised for training men to fire them accurately.

The basic characteristics of the Degtyarev, Bren and Browning are the same:

GILBERT

maj
thomas c
helgeson

they are gas-operated, air-cooled shoulder weapons with bipods. The present organization of the US Infantry regiment includes two BAR's per rifle squad, the British employ three Bren guns in the weapons section of each rifle platoon and the Russians provide one Degtyarev for each rifle squad.

The Soviet Degtyarev

The 7.62mm light machine gun,[1] Degtyarev (DP), is the principal light machine gun of the Soviet Army and is the basic automatic weapon of the Soviet rifle squad. (See Figure 1.) Other models of the Degtyarev, the DPM, DT, DTM and M1946 are variations and improvements. This weapon is light, simple to operate and generally reliable. All variations of the Degtyarev fire from the open bolt position. The weapon's bolt and receiver are constructed so that the firing pin cannot strike the primer of the cartridge until the bolt is locked. There are three vents on the gas cylinder of the DP which the gunner may adjust to modify the rate of automatic fire.

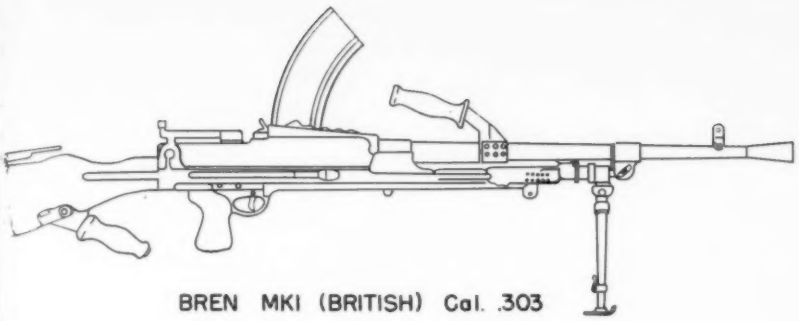
The DP and DPM are drum fed and fire 47 rounds without reloading. DP metal drums are difficult to load, however, and also exceedingly fragile. Some other disadvantages of the DP and DPM are an excessive amount of time needed to change barrels and a relatively low rate of effective fire—80 rounds per minute. In addition, the operating spring of the DP, which coils around the operating rod, tends to overheat because of its proximity to the barrel. Both the DP and DPM are still widely used by the Soviet and satellite armies, but it is believed that they are being replaced by the M1946 company light machine gun. This model is bolt fed; consequently, it is easier to load and has a greatly increased rate of fire.

The British Bren

The .303 caliber light machine gun Bren MKI,[2] was originally manufactured in Brno, Czechoslovakia, and was further developed by Enfield of England. By American standards, one might consider this weapon an automatic rifle since it is fed by a magazine rather than a belt. (See Figure 2.) The five basic models of the Bren differ only in weight and minor parts. The weapon fires from the open bolt position. The bolt moves forward when the trigger is pulled, forcing the cartridge into the chamber and causing the firing pin to explode the primer of the cartridge. By switching a change lever on the left side of the Bren a gunner can adjust the weapon for automatic or semi-automatic fire. He can

DEGTYAREV M1937 (RUSSIAN)
Cal.7.62mm

Figure 1



BREN MKI (BRITISH) Cal. .303

Figure 2

tain very accurate results by firing ngle shots or bursts of not more than e rounds.

The Bren has a very long but rela- ely light trigger pull. For this reason, erators have some difficulty, at first, ooting accurate semi-automatic fire. The weapon's greatest drawback is the im-type case which complicates feeding.

Compared with the BAR

The Browning Automatic Rifle is un- alleled for close shot distribution. In t, it almost lacks useful fire distribu- n at average combat ranges of 200 to 0 yards. The bipod is mounted on the st forward point of the BAR. (See igure 3.) This location provides ex- me accuracy, but at the same time it pairs flexibility when the gunner tries swing the muzzle quickly into a new rget to his flank.

The BAR will fire about 300 to 400 unds at 75 to 100 shots per minute ithout damaging the barrel. In one st, the barrel was ruined after firing 00 rounds, but the weapon shot an additional 700 rounds at 90 per minute. This ability to withstand a fast, continuous rate of fire compensates for the fact that the BAR barrel, unlike the Bren and Degtyarev, cannot be changed in the field.

The British Bren was developed some years after the Browning weapon and contains certain refinements and simplifications of the BAR. The Browning still provides several features, however, which neither the Bren nor the Degtyarev include. These are: a hinged butt plate (this feature was included on the Bren MKI, but deleted on later models) which enables the gunner to stabilize the weapon when he fires, and a rear sight which can be adjusted for windage. Gunners zero the Degtyarev and Bren for windage by adjusting the front sight posts. The BAR[3] also provides two cyclic rates of automatic fire: slow, 350 rounds per minute, and fast, 550 rounds per minute.

Both the Browning and the Bren are equipped with aperture sights (Figures 4, 5 and 6) while the Degtyarev utilizes

[1]US .30 caliber ammunition cannot be used in the Degtyarev light machine guns.

[2]The Bren is also made to fire 7.92mm cartridges.

[3]See "The Story of the BAR," *The Infantry School Quarterly*, April 1953.

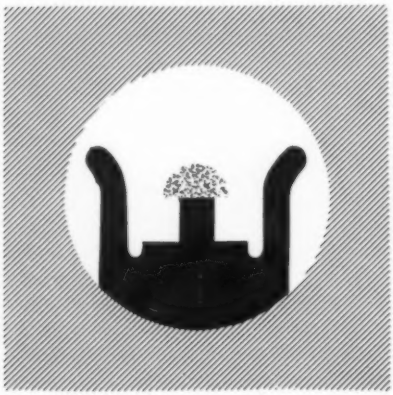
BROWNING AUTOMATIC RIFLE M1918 A2 (U. S.) Cal .30

Figure 3

an open notch sight. The Browning and Bren also have adjustable bipods which enable any gunner to fit these weapons to the conformation of his body. The Degtyarev bipod is permanently attached and nonadjustable.

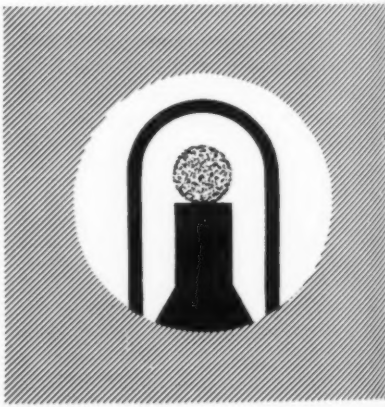
Training Manuals

There are as many differences between the training methods of Russia, Britain and the United States as there are between the automatic weapons of these nations. It is interesting to note that the US Army field manual for the BAR, FM 23–15, is intended for study by the operator of that weapon while Soviet and British manuals are written fundamentally for officers and noncommissioned officers who instruct others in the use of automatic weapons. The Degtyarev and Bren manuals consist of a series of lesson plans and subject schedules. The British intersperse mechanical training throughout preparatory marksmanship. Unlike the British and Americans, the Russians explain ballistics and the construction of the weapon in considerable detail. All three manuals cover the assembly, disassembly, functioning and stoppages of the respective weapons. (See page 111.



BREN LMG AIM PICTURE

Figure 4.



THE BAR SIGHT PICTURE

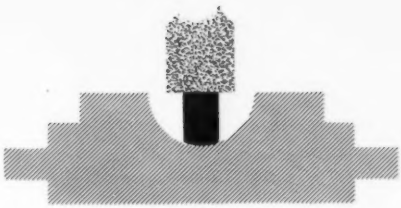
Figure 5.

Firing Positions

There is little disagreement among the three nations concerning firing positions. Soviet, British and US manuals stress the prone position for the same reason: a gunner can maintain this position in spite of the recoil of his weapon, and a good pattern of target strikes depends upon how well the gunner maintains his position. Both the Soviets and British teach combat positions as part of preparatory marksmanship training. Russian soldiers receive considerable training in tracking moving targets, but the US Army does not provide this type of practice until the last training stage—firing on the transition range.

British-style Hold-off

Since the rear sights of the Bren cannot be adjusted for windage, the British instruct their gunners extensively in techniques of hold-off. The British designate hold-off as aiming off for the wind. They classify winds as mild, fresh and strong and wind direction as either side or oblique. The British gunner employs three points of aim when he uses hold-off (Figure 7): first—the outside edge of the bull's-eye; second—a point midway between the first and third aiming points; and third—the extreme outer edge of the outer ring. If the wind blows from the left, he aims to the left. If there is a fresh side wind blowing, he uses the first aiming point when firing



DEGTYAREV SIGHT PICTURE

Figure 6.

from 200 yards and the second aiming point from 300 yards. For a strong side wind, he moves his sight picture out one aiming point and for a mild side wind, he moves it in one aiming point. For an oblique wind, the gunner moves his sight one aiming point less than that allowed for a side wind.

Soviet Hold-off Techniques

The Soviets classify winds as strong, moderate and weak. They designate wind direction as right-front, right-rear, left-front and left-rear. As soon as a Russian gunner classifies wind direction into four sectors, he divides each sector from zero to 45 degrees and from 45 to 90 degrees. His instructors teach him to move his aiming point into the direction of the wind and to adjust his point of aim from the center point at the lower edge of the target. His hold-off varies, of course, depending upon the strength of the wind and the distance to the target.

COMPARISON OF CHARACTERISTICS

	Bren .303 calber MKI	Degtyarev 7.62mm (DP)	BAR .30 calber M1918 A2
Weight	21.5 pounds with empty magazine	20 pounds with loaded magazine	19.4 pounds with bipod
Overall Length	45.5 inches	50 inches	47.8 inches
Muzzle Velocity	2440 FPS	2760 FPS	2800 FPS
Cyclic Rate of Fire	550 RPM	600 RPM	350 & 550 RPM
Maximum Effective Range	600 yards	880 yards	500 yards

If he fires at a range of 300 yards with a strong cross wind blowing, he holds off one complete silhouette width. (See Figure 8.) For a moderate cross wind, he holds off one-half of the figure he used for a strong cross wind. For oblique winds, the Russian soldier decreases his hold-off by half and, if he fires from 400 yards, he doubles the amount of hold-off he used at 300 yards.

Known Distance Ranges

The organization of known distance ranges also differs among the three nations. American ranges vary from 100 to 500 yards and usually have flat impact areas behind the range butts. The British organize their firing lines in a simila manner, but in many instances the Bri ish Army does not have the extensiv training areas found in the Unite States. To solve this problem, the Bri ish usually construct high earth embank ments behind the range butts to stop th flight of bullets. This serves a useful purpose in that it permits firers to ob serve the strike of their bullets and mak subsequent corrections.

Russian field manuals do not mention the employment of known distanc ranges. The Russians have fired on such ranges during international shooting matches but we do not know whethe

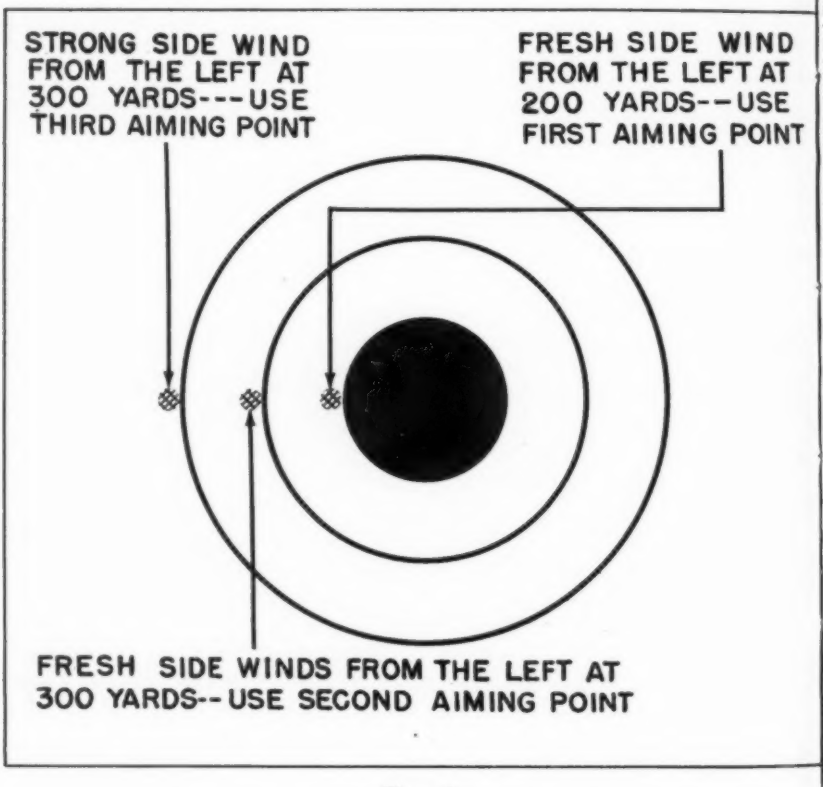

STRONG SIDE WIND FROM THE LEFT AT 300 YARDS---USE THIRD AIMING POINT
FRESH SIDE WIND FROM THE LEFT AT 200 YARDS--USE FIRST AIMING POINT
FRESH SIDE WINDS FROM THE LEFT AT 300 YARDS--USE SECOND AIMING POINT

Figure 7.

COMPARISON OF TRAINING PROGRAMS

British Bren Light Machine Gun .303 caliber

Stripping and assembling: the piston group
Magazine filling, loading, unloading and sight setting
Stripping and assembling: the barrel and butt groups
Aiming and holding
Stripping and assembling: the body and bi-pod groups
Firing
Normal cleaning
Examination of the gun and cleaning before and after firing
Introductory shoot: single rounds
Mechanism
Immediate action
Introductory shoot: bursts
Additional stripping
Stoppages
Elementary handling
Movement with the light machine gun
Mounting the gun using various types of cover
Firing from cover
Mounting and dismounting the gun and tripod
Aiming and firing from the tripod
Fixed lines

U. S. Browning Automatic Rifle .30 caliber M1918 A2

Description, characteristics, disassembly and assembly of the operating group
Functioning of the operating group
Disassembly, assembly and functioning of the buffer and rate reducing group; gas adjustment
Disassembly and assembly of the trigger group
Functioning of the trigger group; review of functioning of the automatic rifle
Stoppages and immediate action; field expedients, care and cleaning
Review of all material covered in the preceding six periods, followed by an examination
Introduction to preparatory marksmanship: sighting and aiming exercises
Preparatory marksmanship: position exercises
Preparatory marksmanship: sight setting and trigger manipulation exercises
Preparatory marksmanship: automatic fire exercises
Preparatory marksmanship: sight changes
Effect of the wind, score card, range procedure, safety precautions
Examination

Russian Degtyarev (DP) 7.62mm

Construction and functioning of the barrel, gas chamber (cylinder), regulator, receiver group, front sight, rear sight and barrel jacket
Construction of live ammunition and loading of the magazine
Assembly and disassembly of the light machine gun
Functioning of the parts and assemblies of the light machine gun
Preparing the light machine gun for firing
Selection of an area for firing and setting up the light machine gun in the firing position; the position of the gunner and assistant behind the gun
Loading, unloading and reloading of the light machine gun; sight setting
Training in sighting
Training in assuming firing positions
Training in firing the light machine gun at moving targets

their recruits train on ranges similar to our own.

Sighting and Aiming

Sighting and aiming is an initial step in US Army preparatory marksmanship training. The Soviets teach this exercise late in their training program while the British include sighting and aiming as well as positioning in their fourth lesson—aiming and holding. The British thus combine two US teaching steps into one lesson. British marksmen are taught to focus on the target while aiming — the opposite of US Army teaching which emphasizes focusing on the front sight blade before firing. The Russians stress sight alignment but make no mention of eye focus before firing.

Do we have the best?

The Bren, Degtyarev and BAR have met the tests of combat. Similarly, Russian, British and American gunners proved the thoroughness of their training during World War II. But no weapon is flawless, nor every gunner perfectly trained. No nation can honestly claim a flawless weapon or a perfect system of training. We can safely state that our weapons and training methods are as good as any thus far developed. We can take pride in our achievements but we should not become overly satisfied. We must continually strive to improve our weapons and training methods regardless of how adequate they appear at any given time.

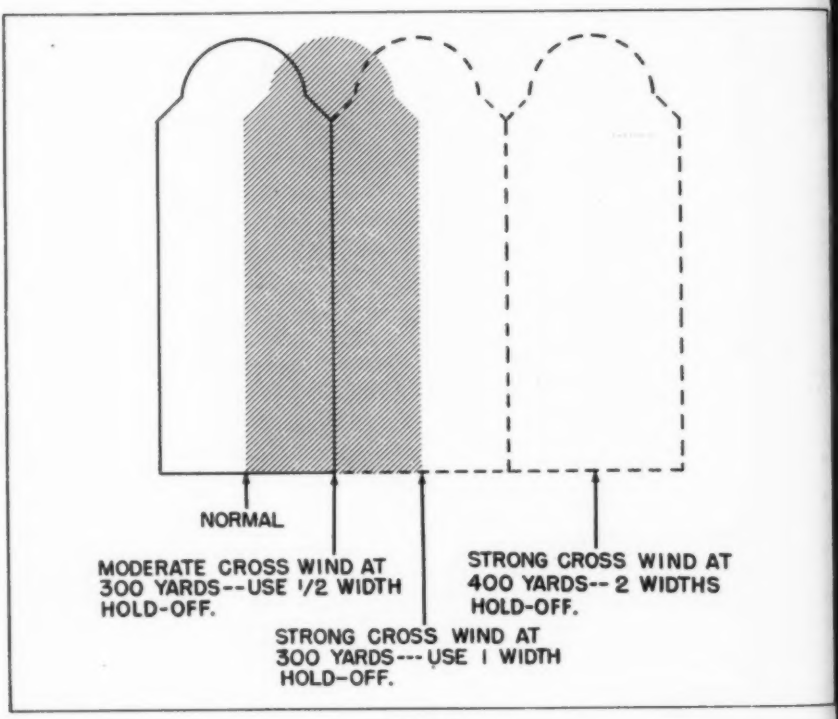

NORMAL
MODERATE CROSS WIND AT 300 YARDS--USE 1/2 WIDTH HOLD-OFF.
STRONG CROSS WIND AT 300 YARDS---USE 1 WIDTH HOLD-OFF.
STRONG CROSS WIND AT 400 YARDS--2 WIDTHS HOLD-OFF.

Figure 8.

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